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Self-regulation to practice: Incorporating the strategy to an early childhood special education setting

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SELF-REGULATION TO PRACTICE: INCORPORATING THE STRATEGY TO AN EARLY CHILDHOOD SPECIAL
EDUCATION SETTING

For the degree of Doctor of Philosophy

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SELF-REGULATION TO PRACTICE: INCORPORATING THE STRATEGY TO AN
EARLY CHILDHOOD SPECIAL EDUCATION SETTING

A Dissertation

Submitted to the faculty

of

Purdue University

by

Kathryn L. Szwed

In Partial Fulfillment of the

Requirements for the Degree

of

Doctor of Philosophy

May 2016

Purdue University

West Lafayette, Indiana

For my parents

May I become at all times both now and forever,
a proctor for all those without protection,
a guide for those who have lost their way,
a ship for those with oceans to cross,
a bridge for those with oceans to cross,
a sanctuary for those in danger,
a lamp for those without light,
a place of refuge for those who lack shelter, and
a servant to all in need.

-Dalai Lama

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ABSTRACT

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Preschool students who display social emotional deficits pose challenging issues for families, caregivers and teachers who educate them. In this study, the effectiveness of an assistive technology based treatment package consisting of video self-modeling and behavior management software was investigated to determine if its combined use would result in increased student self-regulation skills. Using a multiple baseline design, three students used the treatment package to increase self-regulation skills. During the investigation, the accuracy to self-identify behaviors, the documentation of desired and undesired behaviors and the overall impact of the treatment package was studied. Interobserver agreement (IOA) was used to determine accuracy to self-identify behaviors. Results indicated a student increase in identifying undesired and desired behaviors, the percentage of desired behaviors displayed, and the accuracy with self-identifying behavior.

CHAPTER 1: INTRODUCTION

Upon entry into kindergarten, students are required to possess a set of readiness skills, such as a mastery of academic and social emotional learning skills (Ackerman & Barnett, 2005). A student's ability to count, know the alphabet, and identify colors are acknowledged as readiness skills and important academic milestones for school entry (Rafoth, Buchenauer, Crissman, & Halko, 2004). Further noted is the need for a kindergarten student to have strong social emotional skills.

As important as academic development, social emotional readiness assists with academic performance throughout a child's schooling career (Raver & Knitze, 2002; Zins, Weissberg, Wang, & Walberg, 2004). These skills include the ability to work together with classmates or behaviors that help others, maintain social relationships with peers and adults, anger management and positive self-esteem, and emotion regulation (Wittmer, Doll, & Strain, 1996). Specifically, these skills are defined as social emotional competency. When social emotional needs are not addressed, an individual is at risk of delayed social emotional skill development and requiring additional behavior support throughout his or her schooling career.

The National Association for the Education of Young Children (2009) reported that social emotional development was crucial prior to kindergarten entry and that deficiencies in these areas were contributors to the identification of students requiring

special education services. To assist children displaying deficiencies in social emotional development, early childhood services are required to lessen these results. For students with social emotional deficits, early intervention was identified as a tool to decrease poor school outcomes and assist with developing social emotional skills (Stolz, van Londen, Dekovic, de Castro & Prinzie, 2012).

Social emotional competency continues to be a national priority for ensuring a child's school success (Barnett, 2008). Early childhood teachers who instruct students displaying a lack social emotional competency are referenced to as "first responders" who assist in developing these skills (Ladd, 2008). The importance of early childhood education was highlighted in a 20-year longitudinal study that investigated the performance of students who participated in these programs (Reynolds, Temple, Robertson, & Mann, 2001). While its focus was academic performance, positive behaviors were noted with the participants' results as well as a lower percentage of students requiring special education services who received early intervention preschool services (Reynolds, 2000). Further reports suggested the students who received these services had higher graduation rates and decreased involvement in the juvenile justice system (Reynolds, Temple, & Ou, 2010).

Significance of Social Emotional Development. The development of social emotional competency is identified as a readiness skill that lessens problematic behavior in early childhood. In fact, preschoolers and kindergarteners that demonstrate a lack of social emotional competency experience higher expulsion rates in early childhood programs than students in a primary public school program (Gilliam, 2005). Yet, when challenges with social and emotional behaviors are identified and addressed during early

intervention programs, children's emotional challenges are decreased. More specifically, a decrease is noted when challenging behaviors are addressed through strategic and early intervention programming (Gunter, Caldarella, Korth & Young, 2012).

One such early strategy for early childhood students identified to increase social emotional readiness is the intervention of self-regulation. Self-regulation requires individuals to demonstrate control over responses and to regulate these actions (Zelazo & Mueller, 2002). More specifically, self-regulation is an individual's ability to control his or her behavior. Self-regulation was identified through social emotional development as a key component to increase social emotional readiness skills (Boyd, Barnett, Bodrova, Leong & Gomby, 2005; McClelland & Tominey, 2011).

Early Childhood Student Requiring Special Education Services

Children served in early childhood programs receive support through the Individuals with Disabilities Education Act (IDEA) when a disability is detected. Part B of IDEA (1990) requires service implementation to develop a plan to ensure a free appropriate public education for all students with disabilities from 3 through age 21. Specifically, for a youngster in an early childhood program, these services are received through Section 619 of IDEA Part B (Code of Federal Regulations, Title 34, §619 (b)(2)(A)). These services are available when evidence of the child's inability to perform academically and his or her lack of meeting developmental milestones are identified through diagnostic testing and assessments. Under IDEA, early diagnostic testing and placement is essential to assist with students who require additional special education support (Code of Federal Regulations, Title 34, §619 (b)(2)). These services include speech and language services, auditory services, sign language, cued language services,

occupational therapy, psychological services, family training, counseling, home visits, special instruction, vision services, assistive technology devices and assistive technology services, and transportation services (Code of Federal Regulations, Title 34, §632 (1)(4)(E)). For students receiving early childhood intervention for social emotional difficulties, support is received to attain a specific skill or remedy a behavioral deficit to ensure pro-social interactions with their environment (Dunst, 2007). Two special education disability categories, autism and developmental delay, address the lack of social emotional competency or social emotional deficit are commonly identified through early childhood assessments.

Developmental delay. According to IDEA 2004, children receiving special education services for a developmental delay are diagnostically assessed and identified with a lack of age appropriate development in either one or more of the following areas: cognitive, communication, social or emotional, physical and adaptive development. Identification is determined by completing diagnostic testing. Prior to kindergarten, children receive this identification through an educational assessment to access early intervention services (Code of Federal Regulations, Title 34, §612 (a)(1)(B)(i)).

Autism. Children who qualify under the autism category require special education assistance with “verbal and nonverbal communication and social interaction,” “repetitive actions and stereotyped movements,” “resistance to environmental change or change in daily routines,” and “unusual responses to sensory experiences” (Code of Federal Regulations, Title 34, §300.8(c)(1)(i)). For students with autism, behavioral challenges are considered common characteristics when accompanied by deficiencies in language development and adaptive behavior (Park, Yellend, Taffe & Gray, 2012) and self-

regulation deficiencies are noted as early as the first year of life (Baird & Gomez, 2005). Additionally, three-year-old students with autism are reported as having the highest incidence of behavioral challenges (Eisenhower, Baker, & Blacher, 2005). Some of these challenges include self-injury, aggression to others, separation issues, anxiety, fears, and phobias (Maskey, Warnell, Parr, LeCouteur, & McConachie, 2013). For students with autism, early intervention becomes increasingly important to reduce social emotional challenges.

Self-Regulation

Self-regulation is defined as the capacity to comply with a demand while monitoring behavior to accomplish a desired purpose or action (Kopp, 1982). It incorporates the use of recall or regulation steps while increasing self-control (Edwards, Salant, Howard, Brougher & McLaughlin, 1995) and involves regulating behavior, emotions, and thoughts through goal setting, developing strategic plans for goal achievement, implementing and evaluating the plans, and making changes to the plans if originally unsuccessful (Barkley, 2004; Mithaug, 1993; Wehmeyer, Shogren, Zager, Smith & Simpson, 2010). For students requiring early intervention strategies who lack social emotional readiness, programs using self-regulation strategies proved effective for lessening future academic and societal problems (Mersky, Topitzes & Reynolds, 2011; Reynolds et al., 2010).

Self-regulation is a strategy that increases the use of problem solving skills with students who experience social emotional challenges and decrease deficiencies in social and emotional development (Baker, Fenning, Crnic, Baker & Blacher, 2007). Specifically, it is the ability to recall and construct specific steps in a decision making

process to change a response. It is associated with an individual's higher academic achievement (Blair & Diamond, 2008), greater acceptance by peers (Baumeister & Vohs, 2007), and nonparticipation in unhealthy or dangerous behaviors (Tangney, Baumeister & Boone, 2004), while also serving as a predictor for school success (Zimmerman, 1994). Individuals who develop self-regulation skills demonstrate lower problematic behaviors (Murphy & Korinek, 2009). For those who lack self-regulation skills, increased aggression and negative behaviors are increased (Raaijmakers et al., 2009) and inefficiencies in using self-regulated behaviors later often result in higher crime rates and drug abuse (Moffit et al., 2011).

Shonkoff and Phillips (2000) reported that when self-regulation was acquired during the early childhood years of development, an increase was seen in a child's ability to independently complete daily functions, increase task completion, and manage his/her emotional response. When self-regulation was not achieved, the ability to self-manage behaviors was affected for regulating activity level, accepting new or different schedules, regulating moods, reacting positively to environmental factors, transitioning to new routines, and attending to task (Gillespie & Seibel, 2006; Thomas & Chess, 1977).

Students who struggle with social and emotional skills, specifically using self-regulation skills, often experience difficulty with organization and planning (Taft & Mason, 2011).

Self-regulation as an Intervention to Increase Academics

Self-regulation is an essential element in all academic areas, specifically reading, mathematics, and writing (Blair & Razza, 2007; McClelland & Wanless, 2015). The foundation of academic skills, such as reading comprehension, working memory, and math problem solving (Espy et al., 2004; Torgeson, Morgan & Davis, 1992) are

developed through the increased ability to self-manage behavior (Gloeckler, 2012). Other studies using self-regulation based strategies with students experiencing social and emotional disabilities reported improved independence and the quantity and quality of academic work (Lienemann & Reid, 2008; Stotz, Itoi, Konrad & Alber-Morgan, 2008).

Academic performance. Individuals with social and emotional disabilities used self-regulation methods to access reading curriculum (Jitendra, Hoppes, & Xin, 2000). Reading skills, reinforced through self-regulation included oral reading, reading evaluation, and reading comprehension. Individuals with disabilities who used self-regulation skills demonstrated increased planning, monitoring, problem solving, and work performance evaluation (Perry, van de Kamp, Mercer & Norby, 2002). Significant gains were also discovered when strengthening oral reading rate while using self-monitoring strategies (McCurdy & Shapiro, 1992). When comparing self-regulation results from teachers and elementary students, high rates of similar responses were reported. Reading comprehension skills increased when self-regulation methods were implemented (Jitendra et. al, 2000; Joseph & Eveleigh, 2011). Summarization training increased comprehension mastery when using the process of self-regulation with individuals with disabilities in the middle school through using a self-recording checklist (Malone & Mastropieri, 1991). Both academic and behavior improvements were noted while using self-regulation in the classroom. Conderman and Hedin (2011) reviewed that using cue cards to teach individuals with disabilities self-regulating skills was an effective tool to teach behavioral steps, principles, procedures, processes, and rules required during academic tasks.

Writing performance. The impact of self-regulation on increased writing skills for students with disabilities were noted and that some students surpassed the performance of their peers without disabilities (de Milliano, van Gelderen & Slegers, 2012). Writing is one academic area in which self-regulation skills were specifically taught. The *Self-Regulated Strategy Development* program used self-regulation to increase writing performance (Helsel & Greenberg, 2007) and strengthen the development of self-regulation skills (Zito, Adkins, Gavins, Harris & Graham, 2007). Used across each school level, a system for struggling writers to follow was provided that included students developing background knowledge, discussing it, modeling it, memorizing it, supporting it, and independent performance (Harris & Graham, 1999; Santangelo, Harris & Graham, 2008). The self-regulated strategy also increased the writing performance of students identified with attention deficit hyperactivity disorder (ADHD) (Lienemann et. al, 2008). In this study, students not only increased their self-regulation skills, but also generalized the skills while completing other academic tasks. Using a self-graphing system, investigators (Stotz et. al, 2008) also discovered an increase with correct word spelling with students identified with high incidence disabilities when self-reporting responses. Here, fourth graders were able to increase written performance following instruction while self-graphing words written during a story prompt.

Behavior performance. Self-regulation resulted in increased academic performance and behavioral compliance for students with disabilities in elementary, middle, and high school. Studies illustrated the effectiveness of self-regulation within the elementary and high school setting to increase appropriate behavior (Cancio, West & Young, 2004; Hampshire, Butera & Bellini, 2011; Ness, Sohlberg, & Albin, 2011).

Whole class management systems, task completion, and organizational skills were all investigated through a self-regulation system.

In a class-wide peer-assisted self-management program with middle school students with behavioral challenges, considerable increases in on-task behavior were found (Mitchem, Young, West & Benyo, 2001). Self-regulation was also examined through task completion. While implementing self-regulation procedure, Ness and colleagues (2011) reported increased task completion by seventh-grade students with social and emotional deficiencies. Self-regulation not only increased task completion but was also attributed to increases in accuracy and task mastery (Cancio et al, 2004; Hampshire et al, 2011). Increased organization and classroom preparedness for students with emotional behavior disorders were also observed. Gureasko-Moore, DuPaul and White (2006) used a self-monitoring system through a self-monitoring checklist to increase class preparedness in a seventh grade general education classroom. Using a self-monitoring skills log, the students recorded their behavior resulting in increased organizational skills. While studies to investigate self-regulation skills in the elementary and high school appear regularly in the literature, studies illustrating teaching self-regulation to students who display social emotional deficiencies within the early childhood setting where the student purposely self-records behavior is limited (Reid, Trout & Schwartz, 2005).

Assistive Technology and Self-Regulation

Assistive technology (AT) is a product, device, or tool purposely implemented to enhance task completion of an individual with a disability [Individuals with Disabilities Education Improvement Act of 2004 (IDEIA 2004), 20 U.S.C. § 1401(251)]. AT

increases access to daily living activities, academics, and independence within the individual's school, work, home, and community settings and in many cases is required to ensure a student's success (Pecteu, Yell, & Fletcher, 2014). Teaching self-regulation skills by using assistive technology shows promising results for increasing self-regulation of behavior using vibrating watches (Amato-Zech, Hoff & Dorepke, 2006; Stahmer & Schreibman, 1992), a pager system (Epstein, Willis, Connors & Johnson, 2001), audio prompts with taped tones (Harris, Friedlander, Saddler, Frizzle & Graham, 2005; Maag, Reid & DiGangi, 1993; McDougall & Brady, 1998), and student response systems (Blood, Johnson, Ridenour, Simmons & Crouch, 2011; Szwed & Bouck, 2013). These devices increased the use of self-regulation skills with students who display social emotional deficits. Additionally, using forms of assistive technology with student self-recording capabilities were identified as systems to increase on-task behavior (Legge, DeBar, Alber-Morgan, 2010). Assistive technology tools continue to be an avenue of investigation for teaching self-regulation skills.

Video self-modeling. Dorwick (1999) described video self-modeling as a process in which observational learning occurs to increase socially appropriate responses that strengthens the use of self-regulation skills. Used frequently with children identified with disabilities, video self-modeling is an effective assistive technology intervention to increase prosocial behavior with children identified with autism spectrum disorder or developmental disabilities (Buggey, 2005; Wong et. al, 2015). Its effectiveness was demonstrated when implementing and introducing new behavior and adaptive skills with students identified with disabilities (Buggey, 2007; Dorwick, 1999). In previous research, video self-modeling provided increased self-monitoring of off-task behaviors (Coyle &

Cole, 2004), decreased inappropriate behaviors (Woltersdorf, 1992), increased maintenance of on-task behaviors throughout different settings, improved classroom participation (Hartley, Kehle & Bray, 2002), and created high student engagement and enjoyment of the intervention (Bellini & Akullian, 2007; Lonnecker, Brady, McPherson & Hawkins, 1994) for students with disabilities.

Previous studies suggest an increase of the use of self-regulation strategies was observed when implementing video self-modeling for students either at-risk or identified with a disability to foster academic performance and behaviors associated with academic engagement (Prater, Carter, Hitchcock, & Dorwick, 2011). The use of video to increase self-regulation skills proved effective in increasing prosocial behavior for students in preschool programs identified as having ASD or a developmental delay (Ayres & Langone, 2005; Bugey, Hoomes, Williams, & Sherberger, 2010). In addition, video self-modeling was introduced to students with social emotional deficiencies where a slow decrease of aggressive behavior was reported, and a slow increase of self-regulation was observed (McCurdy & Shapiro, 1988). Video self-modeling was used to increase on-task behavior with third grade student identified with social emotional disorder (Blood et. al, 2011). Using a checklist to record on-task behavior and an iPod to view the peer self-modeling, students decreased the percentage of challenging behaviors displayed during math instruction. While the significant impact of increasing self-regulation skills with video self-modeling is apparent in the literature, other forms of assistive technology, specifically computer based instruction and behavior management software was investigated to teach self-regulation skills.

Computerized Software Tools

Computerized management software (CMS) is used to collect, store, and generate school information and is used frequently by school districts to record attendance, classroom assignments, and grades (Boden, 2013; Visscher, 1996). CMS programs also include computerized behavior management components in their data recording systems (Mitchem, Kight, Fitzgerald, Koury & Boonseng, 2007; Miller, Fitergerald, Koury, & Hollingsead, 2007). However, combining computerized instruction and behavior management software in tandem to successfully teach students self-regulation skills is a fairly new practice. Current literature examined the potential of using computerized instruction and technologies with preschool students as an effective practice to make gains with academic, social emotional development, and on task behavior (Gimbert & Cristol, 2004; Yelland, 2005). Because limited studies were identified when computerized instruction was used for behavior management, further research is needed to identify whether these software systems and video self-modeling interventions as a medium for self-regulation increases a child's compliance and percentage of desired behaviors.

Theoretical Foundation

Self-regulation theory (SRT) involves an individual's ability to direct his or her own thoughts and actions to achieve desired goals (Hofmann, Schmeichel, & Baddeley, 2012). SRT includes steps to adjust behavior and involves a decision making process, typically completed with individuals who are able to cognitively self-regulate while modeling other's behavior (Zimmerman, 1986). The first step in the decision-making process involves observing other individuals during task completion. The individual

makes a determination through a cognitive process to either model or not model the task within the environment. This stage entails the individual activating a different response to a task. The second step includes gaining either a positive or negative response for the task completion. By reviewing the environment and situation, the individual determines their response. Specifically, the reaction to a task is determined not by the specific reinforcer but by the process in which the individual chooses to reach that goal through systematic steps (Zimmerman, 1990).

During the current study, students viewed samples of behavior through video self-modeling, to increase appropriate reactions to undesired tasks. After viewing the videos, the students were asked to self-identify behavior. Wehmeyer, Yeager, Bolding, Argan, and Hughes (2003) investigated procedural steps with teaching students identified as developmentally and cognitively disabled to self-identify and record behavior through self-monitoring, self-evaluation and self-reinforcement to self-regulate their behavior. Using the behavior management system, the participants' self-recorded behavior to acknowledge performance during a task. Through the steps of self-monitoring and self-evaluation, the students were asked to self-regulate their behavior. While self-reinforcement wasn't specifically addressed within the study, the use of the behavior management system through the iPad2[®] system was assumed to be reinforcing to the student.

Purpose of Dissertation

The purpose of this dissertation was to explore how early childhood-aged students who display social emotional challenges use self-regulation and how self-regulation may be increased with the use of a treatment package. One avenue to decrease social

emotional deficiencies is using effective behavior interventions during the early development of the child (Stotz et al., 2012). During this study, an intervention package combining the use of behavior management software and video self-modeling was used for teaching self-regulation skills to preschool students with identified social emotional deficiencies. Since no research could be found in which this combined intervention package was used to teach self-regulation skills, investigation with students displaying characteristics of social emotional deficiencies in the early childhood setting was identified as appropriate.

Significance of the Study

The significance of this study is to strengthen the research for early childhood students with social emotional challenges. Research involving early intervention is clear in regards to students at the early childhood level who cannot self regulate because of a social or emotional deficiency. Constructing a self-regulation treatment package through video self-modeling and behavior management software will strengthen the research base for self-regulation with early childhood students who lack social and emotional development. However, studies previously conducted with students who display characteristics of social emotional deficits in the early childhood setting were inclusive with the effects increasing positive prosocial behavior (Buggey, 2012; Buggey, Hoomes, Williams, & Sherberger, 2010; Clark, Beck, Sloane, Goldsmith, Jenson, Bowen, & Kehle, 1993). Further investigation of these treatments is required to determine the effectiveness of increasing self-regulation and prosocial behavior of students with social emotional challenges in the preschool setting.

Research Questions

The study investigated the following three research questions: (1) Can students with social emotional challenges at the early childhood level accurately identify their behaviors using an assistive technology device? (2) If presented with behavior management software, will students with social emotional challenges at the early childhood level use this system and document their undesired and desired behaviors when prompted? And, (3) will the use of an intervention package consisting of behavior management software and video self-modeling result an increase of desired behaviors?

Definition of Terms

Assistive technology

A device, product or tool developed to advance, enhance, or expand the functional capabilities of an individual identified as having a disability. Devices increase access to system, task, communication or process [Individuals with Disabilities Education Improvement Act of 2004 (IDEIA 2004), 20 U.S.C. § 1401(251)]. .

Autism

A neurological disorder resulting with “verbal and nonverbal communication and social interaction”, “repetitive actions and stereotyped movements”, “resistance to environmental change or change in daily routines” and “unusual responses to sensory experiences (Code of Federal Regulations, Title 34, §300.8(c)(1)(i)).”

Behavior Management Software

Computerized software systems that allow the user to record behavior through the use of assistive technology devices.

Developmental Delay

Occurs when a mild or major decrease is observed with developmental milestones in the following 5 areas: physical development, social emotional development, adaptive development, communication development, or cognitive development (Code of Federal Regulations, Title 34, §612 (a)(1)(B)(i)).

Early Intervention

A system of support services for individuals from three to five, but services can be used within the later years. Individuals who receive these services experience difficulty reaching developmental milestones. Services may be provided through special instruction, speech and language therapy, physical therapy, occupational therapy, psychological services, vision services, audiology, family therapy, and assistive technology (Code of Federal Regulations, Title 34, §619 (b)(2)(A)).

Emotional Behavior Disorder

Refers to a failure to learn without cognitive, sensory or medical reasoning, a failure to keep relationships, abnormal feelings or no apparent reason, or depression (Code of Federal Regulations, Title 34, Section 300.7(c)(4)(i)).

Executive Functioning

Cognitive process that organizes thinking that includes inhibitory control, working memory and attentional control.

Self-Regulation

A system developed to regulate behavior, including steps for an individual to follow either with a behavioral or academic task. This includes a systematic approach for self-monitoring behavior with specific steps constructed and taught to change previously displayed behavior.

Social Emotional Competency

Social emotional readiness skills defined as the ability work cooperatively with others, the ability to maintain relationships, controlling anger and positive self-worth, and displaying emotion regulation (Wittmer, Doll, & Strain, 1996).

Video Self-Modeling

Video self-modeling is defined as an individual's observation learning of desired behavior through the use of video technology (Dorwick, 1999)

CHAPTER 2: LITRATURE REVIEW

Children with developmental delays who display social emotional deficits are three to four times more likely to display negative behaviors than their peers, have a higher risk of displaying behavior difficulties by the third grade, and four times more likely to be identified with a mental health diagnosis (Baker, Blacher, Crnic, & Edelbrock, 2002). When not addressed, these social emotional deficits are problematic for a child throughout their schooling career. In some cases, children identified as having a developmental delay in later schooling years receive an identification of an emotional disability.

According to the National Alliance on Mental Health (2010), children with social emotional disability struggle with assembling interpersonal relationships, unusual behavior or feelings, unexplained fears or physical ailments related to school, or just an overall maladjustment within social situations. Additional characteristics may include aggression, withdrawal, immaturity, hyperactivity, or learning difficulties. For school-aged children, the Individuals with Disabilities Education Act (2004) defined an emotional disability as 1) “an inability to learn that cannot be explained by intellectual, sensory, or health factors;” 2) “an inability to build or maintain interpersonal relationships;” 3) inappropriate “behaviors or feelings under normal circumstances;” 4)

“a general pervasive mood of unhappiness or depression;” and/or 5) “a tendency to develop physical symptoms or fears” associated with problems [Code of Federal Regulations, Title 34, Section 300.7(c)(4)(i)].

Outcomes for students with social emotional disorders. The National Longitudinal Transition Study found characteristics for a social emotional disorder include the following traits: seventy-five percent of students are identified as male, thirty-eight percent were retained in a grade level, and individuals are more likely to be African American (Wagner & Cameto, 2004). Increased involvement in the juvenile justice system is often seen with this population while 58% of these individuals were incarcerated after leaving school. The study reported that this population has a graduation rate of 33% and 75% of students were suspended and expelled while in school. Furthermore, 66% of the students were identified with Attention Deficit Hyperactivity Disorder (ADHD).

Characteristics for social emotional disorders. Initial indicators for social emotional deficiencies are identified through assessing internal and external behaviors (Nelson, Stage, Duppong-Hurley, Synhorst, & Epstein, 2007). Internalizing behaviors are described as maladaptive behaviors that include limited social interaction with peer groups, increased anxiety, fear and phobias, suicidal tendencies and increased use of drug abuse (Greif Green, Gruber, Sampson, Zaslavsky, & Kessler, 2010). More commonly identified are individuals who display external behaviors (Merrell & Holland, 1997). Externalizing behaviors are seen as extreme aggression and include drug abuse, incarceration, and tantrum behavior exhibited within the home, school, and community (Reef, Diamantopoulou, van Meurs, Verhulst, & van der Ende, 2010). Additionally, Head

Start agencies identified students who display externalizing behaviors to be the most challenging to maintain within their programs (Snell, Berlin, Voorhees, Stanton-Chapman, & Hadden, 2012). To lessen the effect of the social emotional deficiencies and increase appropriate social emotional development, specific interventions are required.

Implications for best practice to assist with these devices were identified through relationships, supported rigor, relevance and attention to the whole child and participation with appropriate transition training. Establishing relationships include remaining in neighborhood school, implementing more targeted approach with social skills training and using positive behavior and intervention support. Effective intervention strategies for students with emotional and behavioral disabilities (EBD) include developing functional behavior assessments to address specific behavior interventions and strategies, teaching effective social skill training (Wu, Lo, Feng, Lo, 2010), creating self-management systems (Niesyn, 2009), and implementing school-wide systems with Positive Behavior Supports (Lewis, Hudson, Richter, Johnson, 2004). While all students who are identified as having an emotional disability are required to have a behavior plan with strategies implemented (Wagner et al., 2006), students receiving behavior interventions later in school become less likely to adjust behavior (Good, Simmons, & Smith, 1998; O'Shaughnessy, Lane, Gresham, & Beebe-Frankenberger, 2003). Early intervention continues to be instrumental in lessening behavioral challenges with students who display social emotional deficiencies.

Early intervention. Programs that target early childhood intervention proved effective to lessen the need for special education services and increase positive proactive plans to increase school readiness (Mersky et al., 2011). Provisions for establishing early

childhood intervention programs should include appropriate delivery systems, effective practitioners to implement strategic interventions, admission for individuals who require early intervention and access to these programs for children in need (Bruder, 2010). Whether identification of a social emotional deficiency is defined as autism, emotional disability, or developmental delay, additional supports are required within the preschool program to address a lack in social emotional readiness. However, early intervention for social emotional deficiencies in preschool is not often addressed (Kaiser, 2007) and are underrepresented and under-identified while still being prevalent in this population (Powell, Fixsen, Dunlap, Smith & Fox, 2007).

Early childhood intervention becomes imperative while assisting with this population of students to lessen social emotional deficits and increase social emotional readiness. In a 15-year follow-up study with students who displayed social emotional deficits, Reynolds and colleagues (2001) reported students as having higher graduation rates after participating in early intervention. They concluded that early intervention not only lessened the need for behavioral support, but also contributed to students' academic success. Merging the effective strategies of early intervention through prescreening tools, parent training, and social emotional curriculum are reported as reducing challenging behaviors. Therefore, early intervention is effective when the deficiency is identified. Consequently, older children who receive behavior intervention later in their schooling career become more resistant and less likely to change the behavior (Bernazzani, Cothe & Tremblay, 2001).

Early childhood interventions in the preschool were classified as specific, individualized interventions and instructional teaching strategies. These strategies were

implemented in preschool schools and addressed students who display behavioral challenges. Additionally, these interventions were used with students with emotional behavior disorders, autism or developmental delays. Investigating behavior through functional behavior assessments (Dufrene, Doggett, Henington, & Watson, 2007; LeGray, Dufrene, Sterling-Turner, Olmi, & Bellone, 2010; Poole, Dufrene, Sterling, Tingstrom, & Hardy, 2012), addressing needs through social skills curricula (Coplan, Schneider, Matheson, & Graham, 2010; Frey et al., 2013; January, Casey, & Paulson, 2011; Kim, Doh, Hong, & Choi, 2011; Schultz, Richardson, Barber, & Wilcox, 2011), using reinforcement and discrete trial schedules to increase student performance (Daddario, Anhalt, & Barton, 2007; Downs & Strand, 2008), implementing positive behavior intervention and supports (Snell, Voorhees, Walker, Berlin, Jamison, & Stanton-Chapman, 2014; Voorhees, Walker, Snell, & Smith, 2013), and incorporating antecedent training (Caballero & Connell, 2010; Crozier & Tincani, 2007) were effective in reducing problematic behavior in the preschool classroom. Parent training was additionally identified as an effective practice for reducing behavior challenges (Bywater, Hutchings, Gridley, & Jones, 2011; Lakes, Vargas, Riggs, Schmidt, & Baird, 2011). Another common strategy found in the majority of early behavior interventions was self-regulation.

Early intervention that includes teaching self-regulation skills continues to be a preventative measure that increases school success (Powell, Dunlap, & Fox, 2006). Additionally noted, this skill is required to the assist with kindergarten readiness (Cameron, C., Brock, L., Murrah, W., Bell, L., Worzalla, S., Grissmer, D., & Morrison, F., 2012). For students with special needs, self-regulation skills become imperative at

school entry to ensure school success by developing social emotional readiness skills. Self-regulation continues to show promise as an early intervention programs to effectively lessen problematic behavior.

Defining Self-Regulation

Everyday actions are controlled by a person's ability to self-regulate their behavior. Success and failure is determined through adequately navigating the ability to control behavior and respond in a socially acceptable way. These responses are identified through the process of self-regulation.

The current literature consists of numerous definitions of self-regulation. For the purpose of this study, the definition of self-regulation is the use of emotion management and maintaining focus on a task while ignoring an inappropriate response to a given task (Blair et al., 2007; Smith-Donald, Raver, Haynes, & Richardson, 2007). For example, the individuals' ability to self-review and adjust behavior to an uncommon response. The concept of self-regulation becomes a conscious decision to control an already active response to limit or change an overriding reaction (Zelazo et al, 2002).

Theoretical Framework

Self-regulation theory is the individual's response to use the correct reaction while being actively involved in the process of learning (Zimmerman, 1989). Self-regulation learning theory dissects an individual's ability to maintain control over one's behavior to increase the opportunity to achieve the desired goal. Zimmerman (1986) additionally stated self-regulation theory "focuses attention on how students personally activate, alter, and sustain their learning practices in specific contexts" (pg. 307).

Within self-regulation theory, an individual's ability to self-regulate learning is achieved through the process of metacognition, motivation, and behavior (Zimmerman, 1986). The process of metacognition or executive functioning is the ability to construct a plan, organize information, self-instruct, and evaluate the process, which includes being an active participant with the process of identifying and understanding self-regulation (Zimmerman, 2008). Studies were completed addressing students identified with behavioral challenges and the effectiveness of implementing self-regulation strategies. Wehmeyer and colleagues (2003) investigated goal attainment by secondary students identified with developmental disabilities through the self-regulation to decrease disruptive behaviors and increase appropriate listening skills. Through the use of self-regulation by self-monitoring, self-evaluating, and self-reinforcing, participants were able to decrease inappropriate touching and disruptive verbal behavior. Also studied was self-regulation with early childhood students. Mithaug and Mithaug (2003) investigated self-regulation with preschool students, one identified with autism and the other with ADHD. Both students displayed behavior and learning challenges. Students were asked to set goals, complete tasks, and self-record results. Studies comparing student- versus teacher-directed instruction concluded that student performance was higher when self-instructed.

Preschool students with social emotional deficiencies are able to increase appropriate behavior with the intervention of self-regulation (Powell et. al, 2006). This process of increased ability to regulate and manage for goal achieve was additionally identified as executive functioning skills (Goldstein & Naglieri, 2014). Strengthening executive functioning skills were identified as an effective intervention to decreasing

externalizing behaviors, which commonly is found with preschoolers that display problematic behaviors (Vidrine & Svenkerud, 2014).

Executive Functioning

Self-regulation is activated through an individual's ability to initiate the process of metacognition or executive functioning skills to regulate behavior and achieve the required goal. Executive functioning is the process that constructs mental operations using the conscious control of thoughts and actions (Liebermann, Giesbretch, & Muller, 2007). Its components include thinking that uses inhibitory control, working memory, and attentional control.

Inhibitory control refers to consciously ignoring a dominant thought or action that is not needed to complete a given task and was associated with developmental attributes that include attention, memory, reading comprehension, and theory of mind (Carlson, Mandell, Williams, 2004; Carlson & Wang 2007). It is the higher order of thinking that disregards a more governing reaction to maintain the overall purpose of the action. While inhibitory control is important for executive functioning, working memory allows the individual to hold numerous thoughts and perspectives.

Working memory allows for continuation to task completion of the requested task. The development of working memory was associated with higher levels of preparedness with academic performance, readiness skills, and goal-directed performance (Fitzpatrick & Pagani, 2011). Within the construct of executive functioning, working memory allows the individual to retain pertinent information that is needed to complete the ongoing task (Repovs & Baddeley, 2006). Fitzpatrick and Pagani (2012) reviewed the impact on working memory skills with two and three years-olds to determine school

readiness during kindergarten. Findings suggest that strong working memory skills resulted with increased math and reading achievement, specifically identified as number fluency and vocabulary. However, the ability to sustain attention while using working memory skills is constructed through the use of attentional control.

Attentional control is the ability to purposefully attend to a given task and is specifically referred to as the control center for selective attention, self-regulation, self-monitoring and inhibition. Anderson (2002) additionally refers to attentional control as the ability to maintain focus to one task while self-regulating steps to ensure correct task completion. The ability to complete the steps of self-regulation is identified through attentional control, however each component of executive functioning is an integral part of one's ability to self-regulate behavior.

Hoffman, Schmeichel, and Baddeley (2012) discussed a comparison between executive functioning and self-regulation. The connections were identified within working memory in that self-regulation maintains goals and problem-solving solutions and inhibitory control is identified within the constructs of controlling impulses and undesired behaviors. Attentional control is present with self-regulation in the ability to switch between goals, to make the needed corrective to steps to ensure overall goal attainment. While formulating executive functioning and self-regulation skills, the individual uses the subconscious process to task completion. The process increases the individual's ability to use self-regulation skills. These skills develop during the first year of life and between ages 3-7 and increase an individual's ability to use self-regulation skills (Riggs, Jahromi, Razza, Dilworth-Bart, & Mueller, 2006).

Executive Functioning and the Preschool Student

Identifying executive function skills with preschool-aged students requires specific assessments to determine deficits. Assessing these deficits to implement strategic interventions to increase social emotional skills was noted to increase social emotional readiness skills (Bierman, Nix, Geenberg, Blair & Domitrovich, 2008; Diamond, Barnett, Thomas & Munroe, 2007). In addition, executive functioning through self-regulation was identified as an effective early intervention (Pointz et al., 2008). Constructing opportunities to increase executive functioning skills is considered to be a strategic intervention that increases the use of self-regulation with students at the early childhood level (Fitzpatrick et al., 2012).

Identifying executive functioning deficits. Gathercole and colleagues (2007) examined attentional control and executive function behaviors with preschool students who struggled with the working memory and were identified as having characteristics of attention deficit hyperactivity disorder. Deficiencies with executive functioning skills were identified through a lack of attention to task, maintaining focus, self-regulation skills, difficulty remembering information to task, and problem-solving solutions. The authors suggested that strategies focused on self-regulation skills would be an effective intervention to increase attentive behavior.

Inhibitory control, an early component of executive functioning related to sustained attention and the ability to repress extraneous responses (Carlson, Moses, Claxton, 2004) was assessed to determine effectiveness with increasing behavior and attention. Carlson and colleagues (2007) conducted assessments to determine executive functioning, specifically identified with inhibitory control. They found that executive

functioning skills, specifically inhibitory control was assessed with emotion regulation, to increase the ability to use socially and contextually appropriate responses. Positive classroom behaviors were also measured as a function of determining a student's executive functioning and emotion regulation skills.

Liebermann and colleagues (2007) reviewed the development of emotion regulation and executive functioning skills with preschool students. Sixty students ranging from the age of 3- to 5-years of age were given a series of executive functioning tasks to determine the verbal ability and emotion regulation of that task. Assessments included behavior rating inventories and executive functioning tasks to determine relationships between theory of mind and executive functioning and executive functioning and emotion regulation. The development of executive functioning, specifically inhibitory control with preschool students, resulted in observations of positive student behaviors during emotion regulation tasks.

Academic performance, school performance, and maintaining attention were investigated while assessing two components of executive functioning, working memory and inhibitory control. Molfese and colleagues (2010) completed executive functioning assessment with 6- to 8-year olds to determine school achievement. The assessment investigated the areas of working memory and inhibitory control. Results concluded that the executive functioning assessment was able to determine academic and social emotional skills. Specifically, assessments were used as predictors of performance and indicators of students who struggle with attention maintaining behavior in the classroom setting. However, researchers noted that the appropriate intervention must be paired to increase executive functioning skills. Acquired during the early childhood stage of

development (Bronson, 2000), self-regulation through executive functioning requires further investigation.

Interventions. Developing executive functioning skills to increase self-regulation is apparent in the current literature. Examples of increased social interaction and strengthened classroom behavior were reported as positive effects of executive functioning interventions. Hughes and Ensor (2011) reviewed executive functioning skills with academic success in 4- to 6-year-olds. Results indicated that students who participated in these tests demonstrated higher executive functioning skills, made significant behavioral gains in the classroom and increased positive behavior and prosocial interactions with teachers and students. Social models of appropriate behavior were additionally reviewed to increase the use of self-regulation, specifically executive functioning skills. Huyder and Nilsen (2012) reported that pairing socially competent students with students who lack socially appropriate behavior strengthened appropriate social and classroom behaviors. Interestingly noted, researchers reported that the influence of the partner pairing encouraged the use of inhibitory skills in preschool students.

Executive functioning within the process of self-regulation continues to require investigation as an early intervention for students who are at-risk of qualifying for special education (Buckner, Mezzacappa, & Beardslee, 2003). Identifying insufficient executive functioning and incorporating specific strategic interventions during preschool years continues to be vitally important in detecting these deficits and lessening social emotional challenges. Children who lack executive functioning skills have a higher rate of identification of Attention Deficit Hyperactivity Disorder and Autism Spectrum Disorder

(Pennington & Ozonoff, 1996). A lack of executive functioning skills was also identifiable characteristic of students who lacked the appropriate social emotional readiness (Blair et. al, 2008).

Interventions Using Self-Regulation with Students with Disabilities

The literature on self-regulation strategies expands across all areas of special education and is an effective intervention to increase appropriate social behavior and task completion. Studies frequently reviewed the lessening of undesired behavior and increasing appropriate social strategies (Mitchem et. al, 2001; Wehmeyer et. al, 2003). Self-regulation strategies were used with students with identified disabilities to increase appropriate classroom behavior. Among the literature reviewed, self-regulation strategies addressed goal attainment (Agran, Blanchard, Wehmeyer, & Hughes, 2002), task completion and strategies to increase on task behavior while addressing academic (Gajria, Jitendra, Sood, & Sacks, 2007; Wolfe, Heron, & Goddard, 2000), and behavioral and functional needs (Reid et al, 2005). These studies provide the foundation that self-regulation strategies increase on-task performance and behavior regulation with students identified with disabilities. Overall, students were able to reach and maintain adequate behavior levels. Self-regulation strategies also were effective in reducing undesired behaviors and increased overall task performance with students identified with moderate to severe disabilities (Agran, Sinclair, Alper, Cavin, Wehmeyer, & Hughes, 2005), decreased problematic behavior with students identified as with developmental disabilities using self-monitoring checklists and picture prompts (Wehmeyer et. al, 2003), and increasing on-task while displaying appropriate behavior (Rock & Thread, 2007) while using self-documentation systems.

Task completion, on-task behavior, and appropriate behavior were investigated with students who were identified with social emotional disabilities and Attention Deficit Hyperactivity Disorder (Cuenca-Carlino & Mustian, 2013). Findings included increased task completion when implementing self-regulation strategies for increasing on-task behavior. Additionally, self-regulation strategies lessened disruptive behavior (Barry & Messer, 2003) and verbally disruptive behaviors during instruction (Davies & Witte, 2000). Increases in appropriate social behavior, task completion, and problematic behavior were reported when using self-regulation systems. However, additional investigation was required to review alternate forms of receiving self-regulation instruction and documentation systems. Alternative forms of self-regulating systems were reviewed through the use of assistive technology.

Self-Regulation and Assistive Technology

Studies focused on teaching self-regulation skills to students with disabilities through the use of assistive technology varies from simple devices to computerized behavior management systems. Numerous devices were used to teach self-regulation skills to students with disabilities including taped tone systems, mobile handheld devices, and computer management systems (Ganz, Heath, Davis, & Vannest, 2013; Green, Hughes, & Ryan, 2011). Additionally, the assistive technology used was effective not only with students served in self-contained settings, but also when implemented in a general education setting (Hughes, Carter, Hughes, Bradford, & Copeland, 2002). These systems were effective in facilitating the development of self-regulation skills with students who display social emotional deficits.

One study investigated using assistive technology devices to increase both behavior and academic challenges (Freeman & Dexter-Mazza, 2004). Specifically, self-regulation systems were developed using recording devices and taped tones. Using the system with students identified with ADHD, these devices were effective for increasing self-identification of off-task behavior, on-task behavior, and academic work completion (Harris et al., 2005). Further findings concluded that maintenance of self-regulation skills continued after the elimination of the taped tone system and checklist intervention (McDougall et al., 1998).

Further studies used assistive technology devices to teach self-regulation skills to decrease problematic behavior. Mitchem, Kight, Fitzgerald, Koury, and Boonseng, (2007) studied using behavior software to increase academic and behavior performance with three students identified as behavior disorder and one student identified with Asperberg Syndrome Disorder. Results concluded high social validity with teacher and student responses. Student responses indicated that using the behavior management software increased calming time and allowed for behavioral reflection rather than reacting to behavior. The behavior software was effective with decreasing problematic behavior and increasing self-regulation skills.

Other studies were completed to investigate the use of assistive technology devices to teach self-regulation skills to increase correct behavior. Amato-Zech, Hoff, and Doepke (2006) used a motivAider[®], similar to a wristwatch, to assist students with displaying an increase in whether there were on and off-task. Both teacher and students reported high social validity responses, specifically that the device is a user-friendly system. Also noted was the lack of any use of a reinforcer during the study. The device

appeared to be reinforcing to the students, while the increased accuracy of self-reporting on-task behaviors were reported (Joseph & Konard, 2009). Legge and colleagues (2010) used a motivAider[®] to increase self-regulation skills for students with autism and cerebral palsy. All participants displayed behavioral challenges and required assistance with increasing with on-task behavior. Student accuracy of self-reporting and on-task behavior was increased through the use of the device and self-recording form. Specifically, after the device and self-recording form was removed, on-task behavior was maintained. In both studies, the motivAider[®] facilitated a decrease in off-task behavior and while concurrently teaching self-regulation skills. Self-regulation skills were taught using these devices to decrease problematic behavior with students who display social emotional deficiencies (Gulchak, 2008). Results concluded that students were able to increase their behavior when using the handheld device.

Self-regulation was also investigated using an individualized computer management system with a student with ADHD (Epstein et al., 2001) to increase independence to complete daily tasks. Through the use of a computer software package, investigators used a pager system with a student identified as ADHD to increase self-regulation skills. After prompts were received, self-regulation occurred on a self-recording form. Strong social validity reports in favor of the computer software package were used. Self-regulation skills did increase during the intervention, but maintenance was not achieved when the system was faded. However, strong social validity responses were received. During this study, the impact of using behavior management software through the use of computer based programs were used to teach self-regulation skills with

students with disabilities was proven effective through high social validity responses and increasing on-task behavior.

Further computer-based programs were used to teach self-regulation skills. These systems taught social skills through viewing peer examples of appropriate behavior and resulted in increased problem solving skills (Cihak, Kildare, Smith, McMahon, & Quinn-Brown, 2012) through increased problem-solving skills during peer interactions. Increased social interaction behavior was also identified while viewing examples of computer based social stories (Fernstermacher, Olympia, & Sherdan, 2006). In both studies, students viewed examples of social appropriate behavior. The use of assistive technology devices and computer-based systems with students through viewing examples of socially appropriate behavior proved effective to teach self-regulation skills and decreasing the effect of a lack of social emotional development.

Self-Regulation through Video Feedback and Video Self-Modeling

Self-regulation systems also include those that provide video feedback and self-modeling and were identified as valuable for improving a range of skills for students with disabilities (Cihak et al., 2012). Video feedback was used to increase appropriate social behavior and reduce social emotional deficits (Woltersdorf, 1992). The use of video self-modeling also resulted in increases in communication (Sherer et al., 2001), social skills (Sancho, Sidener, Reeve, & Sidener, 2010) and decreases in challenging behavior (Graetz, Mastropieri, & Scruggs, 2006).

Video feedback. Video feedback is the process of recording students' behavior then replaying the video to review behaviors to increase self-regulation skills (Booth & Fairbank, 1984). For example, a student would review previous recorded class sessions

where the behavior was displayed. After viewing the video, the teacher would discuss possible solutions to the problems reviewed in the recording. Video feedback was implemented with students identified as EBD in which increases in self-regulation skills and decreases in off task behaviors were observed (Walther & Beare, 1991). Kern-Dunlap and colleagues (1992) reviewed the impact of video feedback with students identified as having an emotional disability. Videos were compiled for the students to view and review behavior samples with a facilitator. During these sessions, participants received reinforcement when self-recognition of behavior was identified. A reduction in behavior was reported with all the participants, as well as a decrease in the need for intensive special education placement and strong social validity reports from participants (Falk, Dunlap, & Kern, 1996). Additionally, video feedback decreased aggressive and noncompliant behavior when viewing and self-reflecting on one's own behavior when implemented with students who display social emotional deficits (Esveldt, Dawson & Forness, 1974).

Video modeling interventions (VMI). Studies reported a reduction in students' challenging behaviors when using a video modeling intervention system (Buggey, 2005; Schreibma, Whalen, & Stahmer, 2000). Lonnecker and colleagues (1994) investigated using VSM as a prompt system to discuss student behavior. Specifically, when using videos of behavior, investigators discussed a series of questions to review the behavior that the students with learning and behavioral challenges identified and displayed. Effectiveness of this intervention system resulted in a decrease in inappropriate behaviors, increase in appropriate voice volume, and class engagement. Additionally,

appropriate behavior was generalized into other activities and settings throughout the school day.

Higher task completion (Simpson, Langone, & Ayres, 2004) and increased independent task completion (Shiple-Benamou, Lutzker, & Taubman, 2002) was noted for students who viewed models of appropriate behavior prior to completing tasks. Students also acquired social initiation (Grosberg & Charlop, 2014) and expressive behaviors skills (Charlop, Dennis, Carpenter, & Greenberg, 2010) during intervention sessions in which video modeling intervention was used. Lang and colleagues (2009) implemented a VSM system for kindergarten students identified with Asperger's to learn class rules. Investigators recorded video samples of the students performing the class rule. After reviewing the rules, the students were asked to recite the rules. If correctly recited, the students received verbal praise. Results concluded an increase with student performance to follow the class rules. Additional findings report the acquisition of independence when completing a given task, reduction the amount of behavior challenges displayed (Ayres & Cihak, 2010; Nikopoulos, Canavan, & Nikopoulos-Smyrni, 2009) and improved self-help skills (Mohammadpour, Babapour Kheyroddin, & Bakhshipour Roudsari, 2013) were noted following the use of video modeling intervention to illustrate appropriate behavior.

Video modeling intervention also was used to teach how to respond appropriately to varying situations to students who lack social emotional skills (Gelbar, Anderson, McCarthy, & Buggey, 2012). The use of video modeling intervention was an effective tool to enhance the social emotional development for students with disabilities (Reichow & Volkmar, 2010). Self-regulation, through the use of video self-modeling was

investigated with preschool students to increase prosocial behavior, social engagement, and task completion (Bellini, Akullian, & Hopf, 2007; Scattone, 2008). Findings concluded an increase all areas when using these systems as a tool to teach prosocial behavior and increase task completion.

Video self-modeling (VSM). This strategy is used to increase self-regulation through observational learning and continues to be used with students with special needs to attain targeted skills (Charlop-Christy, Le, & Freeman, 2000). VSM is frequently used to reteach a previously learned skill or teach a new skill by having the student view an example of a desired behavior (Buggey, 2012). Upon viewing the target behavior, the student is able to preview the required task being performed and then practice completing the task.

When investigating self-modeling with high school students identified with disabilities, VSM was found to be an effective strategy. Using event-based and momentary sampling, researchers investigated the use of a video self-modeling system to reduce disruptive, disorienting, and out of seat behaviors (Biliias-Lolis, Chafouleas, Kehle, & Bray, 2012). Results concluded a decrease in all behaviors after the intervention was removed. Axelrod, Bellini, and Markoff (2014) investigated VSM with students who are identified as Attention Deficit Hyperactivity Disorder and Oppositional Defiant Disorder. After the intervention was removed, compliant behavior continued. These studies continue to support the use of VSM as an effective intervention to reduce aggressive and off-task behaviors.

Self-Regulation and the Preschool Student with Disabilities

Social emotional development was also associated with their ability to self-regulate behavior and was a significant predictor of school success (Blair, 2002). One predictor of future student success for preschoolers was their ability to identify and self-regulate behavior (Munis, Greenfield, Henderson, & George, 2007). Teachers identified students with strong self-regulation skills at kindergarten entry as confident learners and socially accepted by their peers (Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009). Self-regulation is known as a significant trait that is developed during early childhood years and a predictor of cognitive competence, social confidence, or classroom behavior problems (Gardner & Waajid, 2012). Findings determined students who are able to self-regulate their behavior had less classroom behavior problems and were seen more positively by their teachers. Additional intervention models of self-regulation using alternative methods of video technology with students who display social emotional deficiencies increase academic growth and encourage the development of healthy peer relationships.

Video Self-Modeling for the Preschool Student

Video self-modeling continues to be used in classroom settings and is considered to be an effective intervention for increasing prosocial behavior in students with autism (Wang, Cui & Parrila, 2011). Numerous studies found that using VSM resulted in increased compliant behavior, social initiation, and reduction of emotional behavior disorders special education placement (Kleeberger & Mirenda, 2010; Mazzotti, Test, & Wood, 2013; Velderman et al., 2006). For example, Schreibma and colleagues (2000) examined the use of video modeling with preschool students prior to their transition to

non-preferred activities to reduce tantruming behavior. Wert and Neisworth (2003) used video self-modeling with preschoolers identified as having autism to determine if they could increase spontaneous requesting. Results were positive in both studies with students demonstrating reduced tantruming behavior and increased spontaneous requesting. Shipley-Benamou and colleagues (2002) completed a study reviewing the completion of task analysis steps. Students made significant gains by independently completing the tasks viewed. Buggy (2012) used video self-modeling with three-year-olds who were identified as having autism to investigate social initiations. Gains were recorded for social initiations in older participants with conclusions noting that student age may be a contributing factor as to whether students are developmentally ready to use a video self-monitoring system. Additional studies reported incorporating video technology resulting in increased social initiations and quicker acquisition of skills (Cihak, Smith, Cornett, & Coleman, 2012).

Conclusion

Students who display deficiencies with social emotional readiness skills continue to challenge the instructional environment and require strategic interventions. Use of self-regulation skills results in increases in social emotional readiness and is associated with successful academic achievement and appropriate behavior in the school setting (Blair, 2002; Broson, 2000). It continues to be a key component of social emotional development for students displaying challenging behavior and is considered an effective intervention for use with preschoolers who are served in special education. The ability to engage in self-regulation increases the use of problem solving approaches and diligence with completing a task (Karnes, Johnson, Beauchamp, 2005) and instruction in these

skills is easily incorporated into daily routines and through the use of assistive technologies.

The inability to use self-regulation with academic and behavioral tasks is an early predictor of the need for special education services by students considered at-risk (Liebermann et al, 2007). Effective, strategic interventions are needed to prevent academic and behavioral challenges for students who are unable to self-regulate their behavior. Previous research determined that the use of assistive technology devices with students with special needs to be effective intervention to teach self-regulation skills (Freeman et. al, 2004). When using AT devices to teach self-regulation, studies report increased prosocial behavior, attention to task, decreased noncompliant behavior, and academic gains were observed. Research continues to suggest the promise of using AT devices to increase self-regulation skills with early childhood students. Continued consideration of using assistive technology devices with preschool students who have special needs requires further investigation to determine if skill obtainment through these systems is possible.

Finally, VSM and behavior management software systems require further inquiry in determining their effectiveness as a tool to teach students self-regulation skills to decrease challenging behaviors (Fitzpatrick & Knowlton, 2009). While VSM was effective for increasing on-task, aggressive and lessening noncompliant behaviors, further studies incorporating VSM and behavior management software systems with preschool students to increase social emotional readiness skills and decrease social emotional deficiencies are still needed.

CHAPTER 3: METHODOLOGY

This study investigated the effectiveness of assistive technology for increasing the self-regulation skills of students social-emotional challenges served in an early childhood special education classroom. Specifically, it examined the effectiveness of an intervention package consisting of video self-modeling and behavior management software on preschoolers' ability to identify and document their behaviors while concurrently increasing their desired behaviors. The following questions were asked: (1) Can students with social emotional challenges at the early childhood level accurately identify their behaviors using an assistive technology device? (2) If presented with behavior management software, will students with social emotional challenges at the early childhood level use this system and document their undesired and desired behaviors when prompted? And, (3) will the use of an intervention package consisting of behavior management software and video self-modeling result an increase of desired behaviors? The following were hypothesized for the study: Students with social emotional challenges at the early childhood level will be able to (a) accurately identify their behavior using an assistive technology device, (b) document their behavior (either desirable or undesirable), and (c) increase desirable behavior when using the intervention package.

Participants

Preschool age students who lack social emotional competencies or social emotional deficiencies received early intervention services through a developmental preschool program and who qualified for special education services were targeted for inclusion in this study. Students qualify for the developmental preschool through testing. These students were identified through discussions with school administrators and preschool staff and all received support for displayed behavior challenges through a functional behavior analysis behavior support plan or specific behavior goals included in the Individualized Education Program (IEP).

A purposive sampling was used to identify three students to participate in the study. The sampling method included consent and assent criteria. Parents of students who qualified for the study received an introduction letter and a consent form for student participation. The first three responses received were chosen to participate in the study. Parents were provided assurances that the study would not affect their child's discipline record at school or negatively affect their educational performance. The rationale for including three students was based on the criterion for a single-subject design according to Horner et al (2005). Including at least three participants allowed for replication of effect to establish experimental control and the ability to identify the effects of the intervention on the dependent variable.

Students who were served in the preschool developmental classroom were identified as having a speech and language impairment, a developmental disability, other health impairment, physical disability, or autism spectrum disorder. However, for the purpose of this study, the students' who participated were required to demonstrate a

social emotional deficit. This was evidenced through a lack of social skills identified through the Assessment, Evaluation and Programming System (AEPS-II).

Thomas. Thomas was a three-year-old multi-racial student enrolled in a developmental preschool program within his local school. Academically, Thomas understood one-step directions and was able complete five-piece puzzles. Prewriting activities were limited and considered a non-preferred activity. He was able to express himself, however; he would typically become nonresponsive when angry. Socially, he rarely interacted with his classmates and a preference for social adult interaction was noted. During group play activities, he required assistance with appropriate social interaction and was often observed in parallel play, requiring assistance to request toys from classmates. Strengths for Thomas included high preference for electronics and puzzle completion. He also enjoyed using assistive technology devices such as the classroom computer, iTouch[®], and iPad2[®].

Early intervention support was initially received through First Steps, an early intervening services program that connects families to service providers. After initial testing through First Steps, it was determined that he qualified for special education services as a student with a developmental delay and a secondary diagnosis of language/speech impairment. Results from the AEPS-II indicated that his social communication and social skills were a 2-point standard deviation below the mean. When enrolled in the developmental preschool, additional assessments were completed. According to his multidisciplinary evaluation, Thomas fell into the average range of cognitive functioning for a child of his age. Behaviorally, his parents reported he became easily frustrated and cried when confronted with a non-preferred activity. Additionally,

Thomas struggled with his adaptive behavior and social skills. His IEP goals indicated a need for improved social skills, participating in adult-directed activities, completing non-preferred tasks, and initiating social interaction. Specifically, Thomas required improvement with remaining on task when given an adult directive.

Jason. Jason was a five-year-old African-American student who received services within the same developmental preschool program as Thomas. Academic strengths for Jason included completing puzzles, shapes, completing computer games, singing nursery rhymes, and counting to 15. Socially, Jason was a kind child, but struggled with impulsivity. If he was having a “good day”, he would hold the hands of his classmates and request hugs from his teacher. When having a challenging day, he struggled with social interaction and behavior was described as unpredictable. For example, he would ignore classmates when prompted to play with them and randomly hit or kick staff when asked to complete a task.

Prior to starting preschool, Jason received early intervention services through the First Steps program. Initially, he qualified as a student with a developmental delay and speech impairment with a need for occupational therapy. Using the AEPS-II evaluation tool, Jason scored two standard deviations below the mean in adaptive behavior, social communication, and social skills. He also met with a psychologist to assist with aggression. His behaviors were described as impulsive, angry, and resentful. He was easily frustrated and would have “temper tantrums”. The temper tantrums were described as screaming, spitting, kicking and trying to leave the assigned area. Additionally, Jason displayed self-injurious behaviors when agitated. Self-injurious behaviors included scratching his face and hitting his head.

During enrollment in the developmental preschool, the team assessed and determined that he qualified as a student with autism and speech/language impairment. Jason displayed numerous and serious behaviors, which included physical aggression towards adults and self-injurious behavior towards himself. The IEP identified transitioning to non-preferred activities as an antecedent to his aggressive behaviors. Teachers and parents reported that Jason's behavior was a hindrance to his developmental growth and achievement.

Wyatt. Wyatt was a five-year-old Caucasian student currently enrolled in the preschool program with Thomas and Jason. Described as an extremely likable student, Wyatt enjoyed completing crafts, coloring, and watching trains. Academically, Wyatt could identify all the upper and lower case letters of the alphabet and print his name. In the preschool classroom, he gravitated towards the sensory items and the computers located in the community area. During preschool play activities, Wyatt typically preferred playing at the sensory table, however; he struggled to avoid pouring the sensory materials such as rice, sand, and beans on himself. When given the opportunity to interact social with classmates, Wyatt chose to give commentary on the setting rather than communicate with peers. Additionally, play opportunities typically resulted in parallel play rather than interacting with peers.

At the age of two, Wyatt received therapy through the early intervention First Steps program for speech, language, and occupational therapy. Initial First Steps evaluations discovered deficiencies with social emotional development. The AEPS-II evaluation tool determined that Wyatt's scores fell two standard deviations below the standard deviation mean for appropriate social communication and social skills. Specific

social emotional deficiencies included difficulty with transitioning, crying when frustrated, licking hands, and a fear of going to the bathroom.

At the age of 3, Wyatt was evaluated to determine placement in the developmental preschool after receiving services at the age of 2 through local First Steps service providers. Following additional testing through the Autism Diagnostic Observation Schedule (ADOS), he was diagnosed with autism and language impairment and was determined eligible to receive special education services. The Behavior Assessment System for Children- 2nd Edition (BASC-2) was also used to evaluate the student's social emotional development. Wyatt's scores were at-risk in the areas of developmental social disorders, emotional self-control, atypicality, and withdrawal. The multidisciplinary evaluation concluded that Wyatt had strong academic skills; however, he required additional support with his adaptive behavior skills and social emotional development. It was determined that Wyatt required improvements with his social interactions when transitioning into non-preferred activities and participation in improvement with participation with teacher directed instruction. These areas were addressed within the IEP. Targeted behavior goals identified staying engaged and attending to the task at hand as a primary goal for improvement. Specifically, Wyatt required assistance with transitions to non-preferred activities, waiting for directions, initiating help when needed, and participating in adult activities.

Setting

The study was conducted in a developmental preschool classroom in a large metropolitan Midwestern school district. The school served a total school enrollment of 580 with students placed in preschool to fifth grade. Ethnic diversity included 43%

African-American, 34% Caucasian, 12% multiracial, 8% Hispanic, and 4% Asian students. Twenty-nine percent of students qualified for the free and reduced lunch program, while 17% currently received special education services. Of the total population, 8% qualified as English language learners (ELL). The school district chosen for the study housed four developmental preschool classrooms. However, two of the four classrooms specifically served students identified with social emotional deficiencies. Both teachers were contacted and received information about the study. The first teacher to respond was chosen to participate.

To be enrolled in the developmental preschool, the child must be identified in need to services. These services were determined through an assessment process, initiated by a physician, nurse practitioner or the Indiana First Steps early intervention program staff. However, a parent request was also acceptable for a school-based evaluation. Following initial evaluation, the early intervention team determined whether or not a student qualified for special education services through the developmental preschool program. Individuals assessed for a developmental preschool program qualified as a result of decreased milestone development, either mild or major.

For the present study, activities took place in the classroom setting consisting of ten students, two instructional assistants, and one special education teacher. Seven of the students qualified for special education services. Three students in the class served as peer role models and did not qualify for special education services. The peer role models were examples of appropriate behavior and social interaction. The students placed in this classroom needed support for academic development as well as social emotional growth.

According to their multidisciplinary reports, all students who qualified for these programs required adaptive behavior skills support and social emotional development.

Three doors were connected to the classroom that led to the recess area (back of the classroom), to another developmental preschool classroom, and to a community area with a play area and computer center. Four classes shared the community area. These classrooms were another developmental preschool classroom and two kindergarten classrooms. The physical setting consisted of four student tables- two half-circle tables, one circle table, and one rectangle table. The carpet area consisted of 13 square chairs, with the teacher rocking chair in the middle. A bookshelf with three rows of books was located next to the rocking teacher. Two teacher desks and one instructional assistant table were placed at the other end of the classroom towards the door to the recess area. A dry erase board was placed in the front of the classroom. Attached to the board were lists and pictures of the following items; a calendar with hearts and numbers, shapes (rectangle, oval, diamond, circle, triangle, square), days of the week, and student names' with placement for stations. A circle carpet was located within the circle area near the back of the classroom space. On the carpet the numbers 1-20 and a picture of a rainbow were represented. A bathroom was located in the classroom, closest to the recess door. The bathroom consisted of a toilet, changing table and sink. Located on the bathroom door was a stop/enter sign. Located towards the back of the classroom was the circle area where a student supply storage area was located. Next to the storage area was a Lego table and painting station. Both areas were used during the small group instruction time.

The teacher in the developmental preschool program was Mrs. Henry. Mrs. Henry instructed students in the developmental preschool class for 10 years. She held an

elementary education (K-6) Indiana teaching license with additional licensure in early childhood special education and a kindergarten endorsement. Her entire teaching career was spent instructing students who qualified for the developmental preschool program. Specifically, students placed in her classroom displayed social emotional challenges. Common disability categories served in her preschool class included ADHD, autism and developmental disability. During the study, Mrs. Henry was in the process of completing a master's degree in mild intervention with an emphasis on applied behavior analysis. Her additional training included instruction in the TEACH method, Discrete Trial Training (DTT), and crisis prevention intervention.

Variables

Independent variable. An intervention package consisting of video self-modeling (VSM) and self-monitoring served as the independent variable (IV) to facilitate the acquisition of self-regulation skills in students identified with social emotional challenges at the early childhood level. Two devices were used as part of the intervention package to deliver VSM clips (iPad2[®]) and the behavior management software (ClassDojo[®]). The effectiveness of this intervention package on the number of self-regulation skills and the percent of independent performance using the intervention package were measured and reported.

Dependent variables. The dependent variable (DV) was the ability of the students to self-regulate their behavior. This means that students will be able to accurately identify behavior, self-report either undesired or desired behaviors and overall response to display desired behaviors. This process, through self-regulation theory, identifies the individual's ability to consciously change and control the response to

actions (Zimmerman, 1989). For example, the students were given a verbal prompt, presented with the behavior management system, and asked to identify behavior using the behavior management software. Specific behaviors were determined by reviewing each student's IEP. Additional information was gathered by reviewing the multidisciplinary report, which was constructed prior to the initial IEP meeting. Identified behavior, whether through behavior plans, functional behavioral assessments, or IEP reports were used to determine the dependent variable for each student participating in the study.

Thomas. The dependent variable for Thomas was identified through his IEP. The behavior of concern was described as a refusal to follow directions. The antecedent to this behavior was identified as being asked to complete an academic task. This was operationally defined as refusing to follow directions when given an academic task. For example, screaming and crying were behaviors typically seen when Thomas was agitated.

Jason. The dependent variable for Jason was identified through a functional behavior assessment and IEP. Two behaviors, self-injurious behavior and tantrum throwing described as throwing self on the floor were targeted for intervention. The antecedents to both behaviors were identified as given an academic task to perform. The dependent variable for Jason was defined as self-injurious behaviors and tantrum throwing when asked to complete an academic task. For example, Jason would scream, spit, kick, leave the assigned area, scratch his face, and hit his head with his closed fists.

Wyatt. Two dependent variables were targeted for Wyatt. The dependent variables were defined as refusing to stay in seat and refusing to follow directions. At the time of testing, the antecedents to these behaviors were identified as completing undesired tasks. Examples of these behaviors were walking around the room, crying, and yelling at adults.

Materials

Video self-modeling system. A standard size iPad2[®] was used to generate and view the videos created for the video self-modeling. The video recording function on the iPad2[®] was used to record the videos for the intervention clips and baseline self-modeling video clips. The iPad2[®] had 32 GB capacity with Wi-Fi capability. It had a 9.7-inch screen with a camera function and weighed 1.3 pounds. The video component included a touch screen function that students pressed to view the video. The device was priced at \$349.

Baseline video clips. Prior to the start of the study, videos were recorded showing examples of both desirable and undesirable behaviors. Using the standard video recording function for the iPad2[®], the students were asked to watch a video and signify either desirable or undesirable behavior using pictures of the thumbs up or thumbs down. Each video lasted 30 seconds. Mrs. Henry's children aged four and five, were actors for the videos. They were unfamiliar with the students' in the classroom. Two examples of desirable behavior and two examples undesirable behavior were illustrated during the training sessions. The two examples of desirable behavior consisted of actors being given a task while completing the task. The prompts to complete the task were given by the researcher; however, she was not visible on the screen. The self-modeling clips were completed in the developmental classroom. One video self-modeling clip depicted an actor being asked to write letters. Another consisted of the actor being asked to complete a puzzle. The students were also presented with two examples of undesired behavior. The first video consisted of the actor being asked to complete a writing task. The actor got up and walked around the room. The second video consisted of the actor being asked to

complete a puzzle task. The actor walked over to the toy shelf and started playing with other toys. Each video lasted 20-30 seconds.

Intervention video clips. Video segments of each student participating in the study and completing work during small group instruction were compiled. The videos were created during a writing activity since school staff indicated these activities were the most behaviorally challenging for the students. While sitting across from or next to the student, the teacher prompted each student to complete a writing task and to construct letters. Although other students were present at the table, the teacher and target student worked individually to complete the task. Through an editing process, the videos were compiled to create samples of desirable behavior. These videos were stored on the iPad2[®] used during the study. Prior to the start of each intervention session, the students viewed a video of themselves during small group instruction completing a prewriting activity with desirable behaviors. One individualized video was created for each student. The video length was 30 seconds.

Behavior management software. ClassDojo[®] was used as the behavior management software created to assist teachers with classroom management. Using assistive technology devices to teach self-regulation skills continues to show promise as a tool for teaching the skill with applications using touch screen capabilities as a strong interactive tool for early childhood students (Cristia & Seidi, 2015; Zimmerman, 1986). This no cost software and was accessed through the website www.classdojo.com and allowed the teacher to target specific student behavior and record how a student performed those behaviors using a tablet or computer. During this investigation, the application was downloaded onto the iPad2[®]. After developing a class roster using the

software, the teacher was able to identify either positive or negative behavior and record it using the iPad2[®] or a desktop computer. For the purpose of this study, students were given the iPad2[®] to identify their behavior using the thumbs-up or thumbs-down prompt using the ClassDojo[®] application to determine if this system could be used as an intervention to record self-regulation responses. The thumbs-up icon was presented in orange and brown tones. The thumbs-down icon was red in color. Prior to the start of the study, the ClassDojo[®] application was downloaded onto an iPad2[®] device.

Research Design

A multiple baseline design across students was used to determine the effectiveness of the intervention package on the acquisition of self-regulation skills and independent task performance. By using a multiple baseline design, a functional relationship between the intervention and the dependent variables could be demonstrated (Kennedy, 2005). Additionally, the use of the multiple baseline design allowed for the investigation of the existence of a functional relationship between the assistive technology (behavior management software and video self-modeling system) and behavior during intervention and the maintenance phases.

Data collection simultaneously began for all three students during the baseline phase. Intervention started with the first student after five data points were recorded on target behavior and data stability was observed. The second student began with the intervention phase following a minimum of three consecutive stable intervention data points recorded for the first student. The third student began intervention after a minimum of three consecutive stable intervention data points recorded for the second student. During the maintenance phase, data collection occurred every minute with

identical prompting procedures to the intervention sessions. For example, the student received a verbal and physical prompt to self-record behavior, student self-records behavior, and returns to the activity. The students used the behavior management system to identify whether they were able to identify and regulate behavior.

Data Collection

Interval recording was used to identify the number of intervals in which target behaviors occurred (i.e., number of behaviors correctly identified during 1-minute interval in a 10-minute observation session). Interval recording allowed the investigator to indicate whether the behavior occurred at all during each interval. This data collection method allowed for the determination of whether the behavior occurred during the specific interval of time (Alberto & Troutman, 2006). Data sheets were divided into 1-minute interval-recording sessions for the students' response of behavior and the teacher's observation of the behavior (see Appendix A). Every minute, the teacher identified the target behavior and whether it was demonstrated.

Procedures

Pretraining activities. Pretraining activities included three training sessions. The first involved ensuring that each student demonstrated an ability to press the start button on the video screen. The second session involved reviewing the concept of “thumbs up” and independently using the iPad2[®] to view the sample videos. After viewing the videos, students were taught to identify the “thumbs down” icon and the “thumbs up” icon and demonstrate their ability to do so by pressing the appropriate affiliated icon while using the ClassDojo[®] application. To complete pretraining activities, students were required to independently operate ClassDojo[®] and the iPad2[®]. Each

training session was completed individually with the target student, teacher, and researcher present. The training session was completed at a small group instruction table within the developmental preschool classroom while all other students in the classroom setting completed circle time activities.

Thumbs-Up/Thumbs-Down. Students met individually with the primary researcher and the teacher and reviewed the procedures for responding using the behavior management software. The teacher referenced thumbs-up and thumbs-down as a signal with which students were familiar to indicate undesired and desired behaviors. The training sessions for learning to use this system consisted of a single session that lasted 2- to 3- minutes. During these sessions, the researcher allowed the students free time to play with the behavior management system, reviewed the concept of thumbs-up and thumbs-down and assessed the ability to identify desired and undesired behavior through answering a series of responding to two questions. First, students were given time to practice pushing the icons. After students explored the device, the researcher reviewed the thumbs-up and thumbs-down icons with the student. Next, the students were presented the iPad2[®] with the ClassDojo[®] application open and appearing on the screen. Students were asked to point to the icons (thumbs up/thumbs down) and were then asked to respond to the following questions. They were asked to respond to two questions. The questions included, “What says good job?” and “What says keep trying?” The two questions were asked separately, with time for the student to respond. Each student was able to complete the two tasks with 100% mastery during the initial training session.

iPad2[®] Video Function. Students were presented with the device with the video ready to start and were prompted to start the video. The video illustrated students self-

modeling a target behavior. After viewing the video during three practice trials, they were instructed to hand the iPad2[®] back to the teacher with prompting. Each session lasted 2 minutes. After 100% mastery was achieved of starting all three videos (holding the device, keeping the device on table, watching the video), the video training sessions began.

Baseline Video Clips and Behavior Management Software. During this individual, one-on-one training, students used two iPad2s[®] to display the video and the ClassDojo[®] application. The iPad2[®] displaying the video was placed on the table in front of the student and the student was verbally prompted to start and watch a video that illustrated an example of desirable or undesirable behavior. After the video was completed, the student was prompted to hand the iPad2[®] to the teacher and then was presented with a second iPad2[®] with the ClassDojo[®] application open. A verbal prompt was given to the student to identify his behavior using the ClassDojo[®] application by pushing thumbs-up or thumbs-down icon. This procedure was repeated after viewing each video, watching a series of undesired and desired behavior samples. The students viewed a total of four videos, two examples of undesired and two examples of desired behaviors. Videos were randomly selected for viewing and following three sessions, each student reached 100% mastery for identifying demonstrated behavior with the behavior management software.

Baseline. The baseline phase was completed during small group work activities. The small group activities included prewriting activities, sorting, and puzzle activities. Three students participated in the small group, one target student and two other classmates who were not part of the study. Once per minute, the teacher recorded whether the target student displayed his specific behavior (desirable or undesirable behavior)

during the session on the interval data collection sheet (see Appendix A). Each session lasted 10 minutes. Students' behaviors were recorded for five days or until a stable baseline was achieved.

Intervention phase. The intervention phase took place during small group instruction in which students engaged in sorting or counting practice, and a prewriting activity. Because of the increase of inappropriate behaviors during small group instruction, specifically prewriting activities, this activity was chosen for the study. Each instruction group was composed of two to three peers and one target student participating in the study. Only a single intervention session for the participating student was completed each day. Prior to the start of the small group sessions, the student viewed his self-modeling video clip depicting himself engaged in desirable behavior while completing a pre-writing activity. After he viewed the video, the student handed the iPad2[®] to the teacher. The teacher placed the iPad2[®] next to the student with the ClassDojo[®] application opened. Once small group instruction began, the teacher used a verbal prompt and pointed to the student one time per minute to push the thumbs up or thumbs down icon to identify his own behavior as desirable (thumbs up) or undesirable (thumbs down). The student touched the device to signify identification of the behavior. The teacher recorded the student's choice as well as her behavior rating of the student's performance during the minute interval (see Appendix A) using pencil and paper recording. This phase lasted ten days.

Maintenance. Maintenance occurred two weeks following the last intervention session. Students were observed during three sessions of small group instruction. These sessions were conducted without viewing the video self-modeling samples prior to the

start of the small group sessions. Prior to the start of session, the ClassDojo[®] application was opened and placed next to the target student. The students were first given a writing activity to complete. After they completed the writing activity, they completed either a sorting activity or puzzle during small group work time. The writing activities included writing letters, name and tracing colors. The teacher pointed to the target student every minute to prompt the student to identify if his behaviors were desirable or undesirable. The teacher recorded both her and the student responses on the interval documentation sheet.

Social Validity

Prior to the study, the researcher interviewed both the students (see Table 1) and teacher (see Table 2) using a series of social validity questions. Interviews were conducted in the preschool classroom either alone with the teacher or with the teacher present during each student's interview. Each interview lasted 5-7 minutes and was conducted at the small group instruction table. No other students were present at the table during interviews.

Table 1 Student Social Validity Questions

Pre -Intervention Questions

- Do you enjoy playing games?
- Do you like watching videos?
- Do you like watching videos of yourself?
- Do you like getting thumbs up?
- Do you know when you aren't getting thumbs up?

Table 1 continued

- Do you know how to be good at school?

Post Intervention Questions

- Did you enjoy watching yourself on the video screen?
 - Do you enjoy pushing the thumbs up and thumbs down buttons?
 - Do you enjoy watching videos of yourself?
 - Do you like being told your doing a good job?
 - Did you like when you were told to keep trying?
 - Do you know how to be good in school?
-

Each student was asked a series of pre-intervention social validity questions. These questions targeted each student's level of enjoyment in watching videos, whether they understood when they are displaying positive behavior at school, and if they know how to behave with appropriate actions (following teacher directions, getting along with classmates) at school. A pre-intervention interview also was conducted with the teacher in the preschool classroom and lasted 35 minutes. The teacher was asked questions regarding students' ability to self-regulate behavior, use assistive technology in the classroom, the possible level of instructional disruption with both devices in use, and concerns with the frequency of data collected to document self-regulation.

Table 2 Teacher Social Validity Questions

 Pre -Intervention Questions

- Do you think that the students can identify off-task behavior?
- Do you think that the students can monitor off-task behavior?
- Do you think that using behavior management software and self-modeling video will disrupt class instruction?
- Do you think collecting the data every minute will disrupt small group instruction?

Post Intervention Questions

- Were the students able to identify off-task behavior?
 - Were the students able to monitor off-task behavior?
 - Did the behavior management software device and self-modeling video disrupt class instruction?
 - Did collecting the data every minute disrupt small group instruction?
-

Post-intervention questions were conducted in the similar manner as the pre-intervention interviews. The students were interviewed in the preschool classroom with the researcher and teacher present. Each interview lasted 5 minutes. Social validity measures included questions targeting the enjoyment students experience after using the assistive technology and receiving praise from their teachers (see Table 1). Additionally, students identified whether or not they liked watching themselves on video, using the device to identify the behavior, receiving positive praise for doing a good job, receiving redirection to keep trying, self-identifying behavior, and behavior needed to be good in

school. The researcher and teacher met after school for 45 minutes to conduct the post-intervention social validity interview (see Table 2). The researcher inquired about the effectiveness of the intervention and whether the study was disruptive to the learning environment.

Data Analysis

Investigation using visual analysis was used to determine the effectiveness of the independent variable on the dependent variable to increase the use of self-regulation skills with preschool students who display a lack of social emotional competencies. Both data means for teacher and student were compared and analyzed to determine effectiveness of intervention. Trend, variability, level, immediacy of effect, overlapping data points, and consistency of data points were examined across baseline and intervention phases. Percentage of non-overlapping data points was used to determine the increase or decrease of undesired behaviors and the effectiveness of the intervention.

Trend. Trend of the data identified the measurement within each phase and determined the increase or decrease of behavior change by identifying the slope (Alberto & Troutman, 1995). Using visual inspection, the data increase or decrease was determined within each phase. Investigation occurred to determine the sequence of data points. A positive or negative slope was determined and a positive or negative trend was identified.

Level. The level refers to the mean of the data points per phase (Kratochwill et al., 2012). During each phase, the total sum of the data points was calculated and the average of the total sum was determined to reveal the mean of the phase. Changes in level between phases indicated intervention effectiveness or ineffectiveness.

Variability of the data. After determining the mean or slope of each phase, the variability of the data was investigated within each phase. After identifying the mean, the data points surrounding the mean were reviewed (Horner et al., 2005) to determine if 80% of the points aligned within a 20% range from the mean of the phase being investigated (Gast & Ledford, 2014). Through visual inspection was used to review the location of the data points from the determined mean.

Immediacy of effect. The immediacy of effect was determined throughout each phase of the study. Specifically, immediacy of effect was calculated during the effectiveness of the data means desired and undesired behaviors. The last three data points from one phase to the corresponding three data points within the following phase were calculated (Kratochwill et. al, 2013). Through calculating the mean rate of the last three points of the baseline and the first three points of the intervention phase, a determination of the effectiveness of the intervention was concluded.

Overlapping data points. Overlapping data points are the data points across phases that occur at the same level. Through visual inspection, each phase was reviewed to determine if any overlapping data points were present. Analysis occurred between phases (Horner, Swaminathan, Sugai, & Smolkowski, 2012).

Consistency of data in similar phases. Investigation occurred to review the consistency of data points in similar phases and conditions to determine like patterns and results across participants (Kratochwill et. al, 2010). Specifically, the investigation sought to determine if similar results were found throughout the intervention and maintenance phases. Visual inspection was used to determine the consistency of data and range within

each phase. This process confirms whether a functional relationship exists between the independent (intervention) and the dependent variable (Kennedy, 2005).

Percentage of Non-overlapping Data (PND). Identifying the percentage of non-overlapping data points allows for the determination of whether the intervention was effective. Calculating the PND identifies non-overlapping data points between phases and allows for the deduction of the intervention as non-effective (0-50), mildly effective (51-70), moderately effective (71-90) and highly effective (91-100) (Ma, 2006; Scruggs & Mastropieri, 1998). Specifically, identifying the highest data point in the baseline phase and identifying the probable trend. Next, comparison occurs with the corresponding phases to determine if any data points overlap the pre-identified baseline data point. The number of overlapping data points is divided by the total number of data points within that phase (Wang & Spillane, 2009).

Improvement Rate Difference (IRD). This nonparametric is a measure of nonoverlap for comparing two phases and indicating performance differences (Parker, Vannest, & Brown, 2009). When calculated, the IRD provides an effect size measure that supports visual analysis when contrasting performance between phases and can serve as a means for establishing a functional relationship between dependent and independent variables. It is calculated by dividing the number of improved data points by the total data points per phase and then calculating the difference between the two phases. An IRD Calculator (www.singlecaseresearch.org) was used to determine improvement rate differences per student in this investigation.

Internal Validity

Interobserver Agreement. During this study, a second observer was present during 40% of the baseline sessions, 30% of the intervention sessions, and 33.3% of the time during the maintenance sessions. The second observer received an overview of the study, procedures, and student dependent variables. Additionally, the primary researcher explained the interval recording system for data collection.

The primary researcher completed individualized training to ensure fidelity of data with the second observer. The researcher reviewed the procedures of the study and identified each student's dependent variable. Specific steps were identified as the teacher instructed the group, the student was given a task to complete, and the student pressed either thumbs up or thumbs down. During the minute interval, the second observer identified whether the behavior displayed was desirable or undesirable according to the identified targeted behavior (dependent variable). The second observer documented whether the dependent variables were observed during the minute interval.

These observations were compared to the results of the teacher completing the intervention (see Appendix A). Interobserver agreement was calculated to determine the accuracy with interval data being collected during each session by dividing the number of interval agreements by the number of interval agreements and interval disagreements and multiplying this number by 100 (Alberto et al., 1995). The resulting percentage signified the agreement of student response and correct teacher recognition of behavior. To ensure the validity of the study, 90% of interobserver agreement was determined as an acceptable level (Barlow, Nock, Herson, 2009).

IOA for accuracy of self-reporting. Interobserver agreement was used as an additional measure was used to determine accuracy of self-reporting. Two independent observers collected data and recorded data simultaneously with the student during each session. The two observers were present for 100% of the intervention and maintenance sessions.

Treatment Fidelity

Treatment fidelity was completed both during the intervention and maintenance phases where a second observer was present for 30% of sessions. Prior to the start of the study, the researcher met with the second observer to review the procedures that were to be completed during each session. A checklist was constructed with a series of thirty-four questions (see Appendix B). The questions consisted of the step-by-step procedures that the teacher would follow during the intervention. The steps consisted of identifying yes/no responses to procedures observed. The introductory set of procedures consisted of four steps and included the following; transition to small group, iPad2[®] placement, teacher verbal prompts to view the video, and student viewing of the video prior to the start of the session. Next, the observer documented the following three step series; the teacher's nonverbal prompt (point) to the ClassDojo[®] system, the student identification of his behavior, and teacher documentation of the student's behavior. The training lasted 30 minutes

CHAPTER 4: RESULTS

This study explored the effectiveness of using assistive technology for increasing the self-regulation skills of students with social emotional challenges at the early childhood level. The following questions were answered through this research: (a) can students with social emotional challenges at the early childhood level accurately identify their behaviors using an assistive technology device? (b) If presented with behavior management software, will students with social emotional challenges at the early childhood level use this system and document their undesired and desired behaviors when prompted? And, (c) will the use of an intervention package consisting of behavior management software and video self-modeling result an increase of desired behaviors?

To determine the effectiveness of the intervention, accuracy of student self-reporting, documenting of undesired and desired behaviors, and the impact of the intervention was investigated. Accuracy of self-reporting behaviors was calculated using an interobserver agreement (IOA). During each session, two independent trained adult observers recorded student responses as desired or undesired behavior. By cross-referencing data collected from the two trained observers and student, accuracy for the student to self-report was calculated. Next, the percentage to document behaviors as undesired and desired was recorded. Compliance with small group instruction,

specifically prewriting activities, was documented to determine student performance using the behavior management software. Lastly, a multiple baseline design was used to determine the impact of intervention on behavior. Visual analysis examining trend, variability, level, immediacy of effect, and consistency of data points in similar phases was conducted. The percentage of non-overlapping data points (PND) was calculated to evaluate the performance differences between phases. Additionally, an improvement rate difference (IRD) (Parker et al., 2009) was calculated to determine the improvement rates between the baseline and intervention phases. Finally, means and mean differences were examined, as was social validity and treatment integrity in the assessment of results. Each of these measures provided evidence as to the effectiveness of the independent variable, whether a functional relationship between intervention and target behavior was established, and the social importance of the procedures that were used.

Overall, results of self-report behavior found high rates of accuracy with two students during intervention sessions. Maintenance session results found high accuracy with all students. When reporting on the documentation of undesired and desired behaviors, 100% response was found with all students. Lastly, the impact of the intervention found positive findings after the implementation of the video self-modeling and behavior management software.

Accuracy of Self-Recording Behaviors

The accuracy of each student's self-reporting of desirable and undesirable behavior is illustrated in Table 4 and Table 5. The number of observations by the students and observers are illustrated in Table 3. Here, each student's self-recorded data were calculated using an interobserver agreement (IOA) measure. To ensure the accuracy of

self-reporting, IOA was used. Two independent and trained adult observers documented all student responses as correct or incorrect per session. For example, if a student demonstrated a desirable behavior and recorded it as such, the independent observers would record a correct student response. However, if the student demonstrated an undesirable behavior and recorded it as desirable, the independent observers would record an incorrect student response. Student self-reporting data were analyzed during each session and cross-referenced with the two observers data to establish accuracy with behavior identification. Interobserver agreement was used to confirm the ability of the student to purposefully and accurately self-identify and document his behavior. Data accuracy was measured during the intervention and maintenance phases.

Table 3 Number of Observations

Student	Student / Observer 1	Student / Observer 2	Observer 1/ Observer 2
Thomas	13	13	13
Jason	13	13	13
Wyatt	13	13	13

Table 4 Mean Percentage of Interobserver Agreement between Student and Observers During Intervention Sessions Mean

Student	Student / Observer 1	Student / Observer 2	Observer 1/ Observer 2
Thomas	26	27	96
Jason	87	89	99
Wyatt	85	87	100

Table 5 Mean Percentage of Interobserver Agreement between Student and Observers During Maintenance Sessions

Student	Student/ Observer 1	Student / Observer 2	Observer 1/ Observer 2
Thomas	96.7	96.7	100
Jason	100	100	100
Wyatt	100	100	100

Thomas. Thomas accurately recorded his behavior during 26% of intervention and 96.7% of maintenance sessions. Recording accuracy was determined by comparing his data to that of the first independent observer. Interobserver agreement (IOA) was calculated between Thomas and Observer 1. Further agreement was calculated between the two trained observers. Overall IOA between the two independent observers for Thomas during intervention was 96%. During the maintenance sessions, IOA was 100% between the two observers. Calculation of IOA between Thomas and the two observers ranged from 26-27% during the intervention phase. This indicates that Thomas was inaccurately self-recording his own behavior during the intervention sessions. However, during maintenance sessions, IOA between Thomas and two observers was 96.7%. Student performance indicates that he was able to accurately self-record his behavior during the maintenance sessions with the behavior management system. However, during the intervention session with the video self-modeling system, Thomas was unable to self-record his behavior. Hence, Thomas' performance would indicate that during the intervention sessions, he was unable to achieve accuracy with identifying behavior.

Jason. During the intervention sessions, Jason accurately recorded his behavior during 87%. Maintenance sessions resulted with 100% accuracy with self-recording his

behavior. The accuracy of recording was calculated by reviewing data collected by the student and first independent observer. Again, IOA was identified between Jason and Observer 1 and then Jason and Observer 2. Findings of IOA between the between the two trained observers were also investigated. IOA between two independent observers was 99% during the intervention sessions and 100% during the maintenance sessions. Calculated percentage of mean IOA between Jason and observers ranged form 87-89%. Additionally, during the maintenance phase 100% interobserver agreement between the student and two observers was reported.

Wyatt. Accuracy for Wyatt to record his behavior during interventions sessions resulted with 85% accuracy. This increased to 100% accuracy during maintenance sessions. Accuracy of recording data was determined by comparing Wyatt's data with first independent observer. This was calculated through interobserver agreement (IOA), specifically between Wyatt and Observer 1. Two trained observers completed additional calculations of agreement. During intervention sessions, IOA agreement was 100% between the two observers. Percentage of mean IOA during the maintenance sessions was 100%. When calculating IOA between each independent observer and Wyatt, IOA was 85-87% during intervention and 100% during maintenance.

Documentation of Undesired and Desired Behaviors

The percentage of student documentation of behaviors was investigated throughout the intervention and maintenance sessions. The students' ability to use the behavior management software to document undesired and desired behaviors was measured. Compliance to self-record behavior as desired or undesired after receiving a prompt was investigated.

Thomas. Documentation of student performance of desirable and undesirable behaviors consisted of 100% response to documenting undesired and desired behaviors during the 10 intervention sessions. During the maintenance condition, which consisted of three sessions, Thomas identified and reported his undesired and desired behaviors during 100% of the sessions. A mean level for Thomas' self-reporting of behaviors between intervention and maintenance phases remained consistent with 100% documentation across the two sessions.

Jason. Similar results were reported when investigating Jason's response to documentation of desirable and undesirable behaviors. During the intervention phase, 100% response to student documentation of undesired and desired behaviors. The maintenance condition indicated comparable results with undesired and desired behaviors documented during 100% of the time during the sessions. Student performance confirmed strong results with the ability to use the behavior management system and self-record desirable and undesirable behaviors. Jason's self-reporting of behaviors between intervention and maintenance phases remained similar with a mean level of 100% documentation across the two sessions.

Wyatt. During the intervention condition, Wyatt was able to document his undesired and desired behaviors 100% of the time. Comparable results with student performance were indicated during the maintenance condition with 100% response to identifying undesired and desired behaviors during the sessions. A mean level for documenting undesired and desired behaviors between intervention and maintenance phases continued constant throughout the two sessions with 100% documentation.

Impact of Intervention Package on Student Behaviors

For this question, the impact of the intervention package on increases and decreases in desirable behavior was examined. Figure 1 illustrates student performance of desired behaviors across conditions. The increases and decreases in data means between behaviors and conditions were examined.

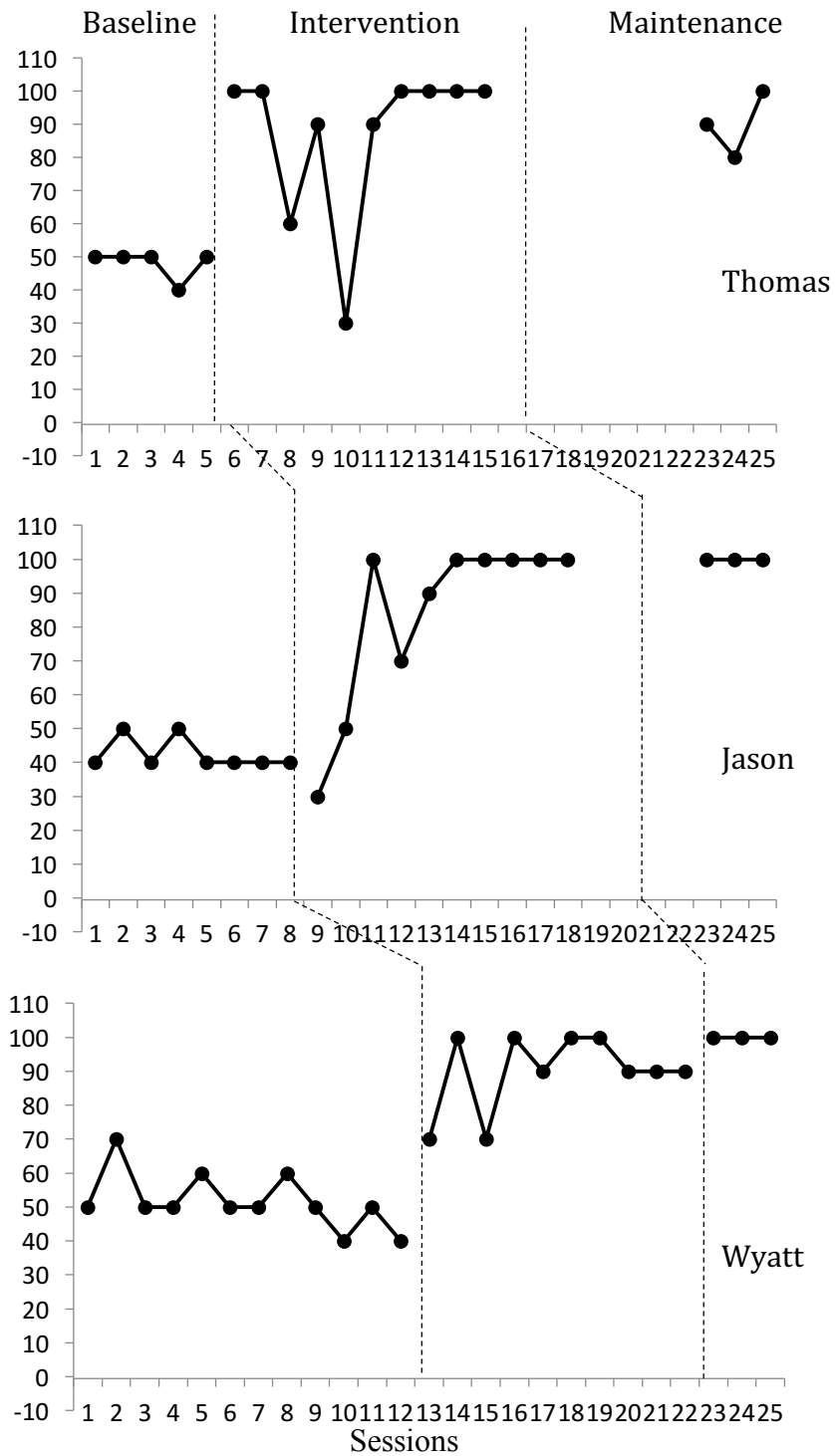


Figure 1 Student performance across conditions during small group instruction

Thomas. Baseline data collection was completed during a five-day period (see Figure 1). His mean percentage of desired behaviors was 48% ($\sigma= 4.47$) during baseline sessions. Following intervention, Thomas' mean desired behavior increased to 87% ($\sigma= 23.59$) of sessions. This represented a 39% increase from the baseline mean. When reviewing Thomas's data during the intervention phase, the range of desired behaviors per session and reported was 30% to 100%. An immediate effect was observed with the first three data points when implementing from the baseline to the intervention phase with 40% increase in desired behaviors. Visual inspection identified the variability of data points, with 80% of the data in the intervention phase ranging from 20% of the mean of the intervention sessions. A positive slope was observed from baseline to intervention. Increased performance continued during the maintenance phase with a mean performance of desired behavior at 90% ($\sigma= 10$). This represents a 42% mean increase from baseline and a 3% mean increase from intervention sessions.

The percentage of non-overlapping data points was calculated to determine effectiveness of the intervention, with one overlapping data point. Resulting PND indicate a highly effective intervention from baseline to maintenance. PND indicated a moderately effective intervention from baseline to intervention. Improvement rate difference (IRD) was also calculated between baseline and the intervention phase. Results concluded an IRD score of .9, consequently signifying a strong intervention effect. IRD was also calculated between baseline and the maintenance phase with reported results of 1.0 indicating a strong intervention effect.

Jason. Jason's baseline data collection was completed for eight days (see Figure 1). During baseline, his mean percentage of desired behavior was 42.5% ($\sigma= 4.63$) of

desired behaviors displayed during the sessions. During the intervention phase, student performance indicated desired behavior 84% ($\sigma = 25.47$) of the time, with an increase of 41.5% of desired behaviors from the baseline mean. Student performance continued to increase during the maintenance condition with a mean level performance of 100% ($\sigma = 0$). Student performance indicated a 57% mean increase from baseline and a 16% mean increase from intervention sessions.

The range of desired behavior data points were reported from 30 to 100. The effect of the intervention was immediate from baseline to intervention phase with 20% reported increase of desired behaviors. A positive trend was observed, with 80% variability of data points ranging from the mean rate of the intervention. Consistency of the data points continued throughout the last 5 data points of the intervention and continuing through the maintenance phase. Visual analysis identified noted 2 overlapping data points during the intervention sessions.

Percentage of non-overlapping data points during the baseline and intervention phase indicated the intervention as moderately effective (80%). PND was calculated with the baseline and maintenance phase to determine the effectiveness of the intervention. Results concluded during the maintenance phase the intervention to be highly effective (100%). Calculation of IRD occurred between the baseline and intervention phase. Concluding IRD results indicated a moderately strong intervention effect (.8). Additional IRD calculations between baseline and maintenance phase indicated results of 1.0, which signify a strong intervention effect.

Wyatt. Twelve data points were collected during Wyatt's baseline sessions (see Figure 1). The percentage of desired behaviors during baseline sessions was 51.7% ($\sigma =$

8.35) with a mean difference of 38% between to the two conditions. During the intervention phase, desired behaviors increased and were observed 90% ($\sigma= 11.55$) per sessions. Student performance continued to increase during the maintenance sessions with 100% ($\sigma= 0$) of desired behaviors displayed. Results represent a mean increase of 10% from the intervention condition and 48% increase from baseline sessions.

Additional analysis examined the effectiveness of the intervention. An investigation of mean level difference indicated a 39% increase of desired behaviors between the baseline and intervention phase. An immediate effect occurred when the intervention was introduced with a 37% increase of desired behaviors. The variability of data resulted with the intervention phase with 80% of the data points ranging 20% distance from the mean. A positive slope was observed with only 2 points falling below the trend line.

The percentage of non-overlapping data points was also examined with two overlapping data points. PND was calculated during the baseline to intervention reporting moderately effective results (80%). Similar results were indicated with baseline to maintenance phases; the intervention was reported as high effectively (100%). Computation of IRD between the baseline and intervention phase reported a strong intervention effect (.92). A strong intervention effect (1.0) was reported when calculating IRD between baseline and maintenance phase.

Interobserver Agreement and Treatment Fidelity

Interobserver agreement (IOA) was calculated across each phase of the study. IOA was calculated for each student by identifying the number of interval agreements and dividing the total number of agreements plus disagreements (Hawkins & Dotson, 1975). Overall,

IOA measures during baseline ranged from 94%-100%. IOA remained within the same general range during both intervention (93.3%- 100%) and maintenance phases (96.7%-100%). For Thomas, a second observer was present for 40% of baseline sessions, 30% of intervention sessions, and 33.3% of maintenance sessions. His IOA ranged from 95% - 96.7% across sessions. IOA measures for Jason occurred during 38% of baseline, 30% of intervention, and 33.3% of maintenance sessions with agreement ranging from 93.3% to 100% across sessions. Finally, Wyatt's IOA measures occurred during 33% of baseline, 30% of intervention, and 33.3% of maintenance sessions. His IOA was calculated at 100% for all phases.

Treatment fidelity measures were calculated during the intervention and maintenance phases for each student. Treatment fidelity consisted of checklist of thirty-four questions which the second independent observer circled either yes or no (see Appendix B). The second observer completed treatment fidelity during 30% of the intervention sessions and 33.3% of the maintenance sessions for each student. Treatment fidelity was measured at 100% for each student across phases.

Social Validity

Social validity interviews for students were conducted individually in the classroom. The researcher, with the teacher present, asked each student a series of questions prior to the start of the study (see Table 1). Social validity interviews for the teacher were conducted after school hours in the classroom (see Table 2).

Pre-Intervention Interviews. When conducting the social interview questions, the students were expected to remain seated and respond to the questions stated. Throughout the series of questions during the pre-intervention social validity interview,

Thomas required redirection and verbal prompting to remain in his seat. The other students were able to sit and respond to the questions without receiving redirection or prompting.

At the beginning of each interview, student perceptions on playing games and watching videos were discussed. Both Thomas and Wyatt responded positively to enjoying playing games and watching videos. Wyatt also added specific board and videos games that he enjoyed playing. Jason responded that he did not playing games, but did enjoy video games. Thomas was the only student who responded positively to viewing self-videos. Preference for receiving reinforcement and praise were also discussed. Both Thomas and Wyatt indicated a positive response to receiving praise and positive reinforcement. However Jason responded negatively to receiving praise, but would rely on teacher feedback for guidance on appropriate behavior. All students acknowledged school rules and stated an understanding of classroom requirements.

When asked generally about her perception of students' ability to self-identify off-task behavior and self-monitor their behavior, the teacher responded that Wyatt was the only student able to identify off-task behavior after receiving a redirection. The other students were not able to learn that skill. She noted that wandering around the room and crying was the behavior demonstrated most frequently by all three students after a direction was given, especially during small group instruction. The teacher additionally discussed skill deficit vs. performance deficits. She felt that the students in her room have skill deficits and need to learn the skill. When asked if the students could monitor off- task behavior, the teacher responded that the other students could monitor off-task behavior at times when using positive reinforcement to increase staying on task. Positive reinforcement

was given to the students in the form of verbal praise. She expressed that the students could likely learn the skill of monitoring off-task behavior, but was unsure because of their age and skill set.

Predictions on whether the devices used in the study would be troublesome to the small group instruction and whether the frequency of data collection would be disruptive to small group instruction were also discussed. The teacher stated that she didn't believe that the intervention package would be disruptive to the class. Many transitions occurred within the preschool setting with therapists entering and exiting the room to work with the students. The system would only be used during small group instruction, so if a disruption occurred, it would be contained to that area. In terms of whether data collection would be disruptive, the teacher indicated that it would depend on the day. In particular, she noted that Jason was easily distracted and if he is having a rough day, the data collection system would be challenging for him.

Post Intervention Interviews. At the conclusion of the study, post interview social validity interviews were conducted for both students (see Table 1) and teacher (see Table 2). A series of questions were asked to the students and teacher. Identical procedures to pre intervention questions were followed during the post interview questions.

All students stated enjoyment when viewing self-videos and identifying behavior. Additionally, each stated enjoyment with receiving positive reinforcement through the behavior management software. Lastly, a positive response was received when reviewing acknowledgement and understanding of classroom rules.

At the conclusion of the study, the teacher also was asked a series of post intervention questions. When asked if the students were able to self-identify off-task behavior, she discussed each student individually. Thomas was occasionally able to identify his behavior, however he was also very aware of the reactions of the pushing the thumbs down icon. It became more of a game, watching the students react to poor choices than positive. Jason was able to self-identify more of the off-task behavior, but watched his teacher's reaction to choice. Out of the three students, the teacher stated that Wyatt was able to consistently self-identify behavior.

Next, the teacher was asked about her perceptions of each student's ability to self-regulate off-task behavior. She noted the following concerns with Thomas' inability to self-regulate: lack of understanding the concept of self-regulation, negatively reinforced by his classmates' reactions to negative responses on the behavior management software, and a lack of attention during the self-modeling videos. Conversely, she stated Jason appeared to learn regulation skills. He appeared to enjoy using the behavior management software and the iPad2[®]. Additionally, small group instruction typically resulted with "huge behavior meltdowns" because of the task requirement. The teacher stated that no adverse behavior was noted during the study. As well, Wyatt did not display verbal frustration during the use of the self-monitoring and behavior management system. The teacher stated that he found the behavior management software reinforcing, but felt he did not make the connection to viewing the self-modeling videos as examples of desired behavior.

Disruptions including using the intervention package and frequency of data collection were discussed with the teacher. She commented that the use of the

intervention package as enticing to the students, almost becoming a reinforcer for transitioning. Frequency of data collection was a challenge, however not impossible. Factors determining the challenge to collect data included number of activities required to differentiation, steps per lesson, and other classmates' behaviors. Additionally, while the 1-minute interval observation was doable, 2-3 minute intervals instead of one would have been easier.

CHAPTER 5: DISCUSSION

Strong societal attributes are identified through the development of social emotional skills and proved to increase the completion of secondary school, and maintaining full time employment; while lacking social emotional development increases higher rates of requiring special education, grade retentions, higher rates of public assistance later in life, and increased exposure to criminal involvement (Jones, Greenburg, & Crowley, 2015). When social emotional deficits occur, prevention through early intervention will assist with developing skills needed for success. One means for increasing strong social emotional readiness skills is developing strong self-regulation (Blair et al., 2007; Valiente et al., 2007). Self-regulation continues to be an intervention that holds promise and decreases the negative effects of undesirable behavior for students with social emotional deficiencies. Self-regulation is a process of recognizing and managing one's own behavior and making adjustments to that behavior to successfully meet learning and behavioral goals. Students who receive training in self-regulation skills as an early intervention have greater school success (Powell et al., 2006). They are able to develop and maintain strong academic gains, make positive peer relationships, and have greater access to the general education settings (Raver et al., 2011).

Increasing self-regulation skills with students who display social emotional deficiencies through the use of VSM systems with the sole purpose of behavior reduction

continues to be lacking within the current literature. Studies examining video self-modeling with children with social/emotional disability found that they increased social initiation (Buggy, 2012), skill acquisition (Shipley-Benamou et al., 2002), and self-help skills (Mohammadpour et al., 2013) after use. However, limited research was completed investigating reducing problematic behaviors with preschool students who display social emotional deficiencies. Schreibma and colleagues (2000) investigated reducing tantruming behavior with preschool students when using video self-modeling. Notably, the behavior reduction occurred when being requested to complete a non-preferred activity. However, students did not self-report their behavior; rather, investigators did so. A second study found a reduction in tantruming behavior for young children with autism when video self-modeling was used (Wert et al., 2003). Yet, student's ability to self-identify and report their behavior was not included in the study.

This study sought to investigate the implementation of self-regulation strategies to early childhood students with social emotional deficits. Specifically investigated was using video self-modeling and behavior management software to increase desired behaviors with preschool students who display social emotional deficiencies. The following questions were investigated through this research: (1) can students with social emotional challenges at the early childhood level accurately identify their behaviors using an assistive technology device? (2) If presented with behavior management software, will students use this software and document their undesired and desired behaviors when prompted? And, (3) will the use of an intervention package that combines video self-modeling and self-recording result in an increase of target student's desired behaviors?

Self-regulation theory served as the foundation for framing the present study to teach self-regulation skills to students at the early childhood level. The effect of this theory affirmed as students demonstrated improved performance and a positive impact on desired behaviors after they viewed examples of their own behavior. Increases in desired behavior were observed across sessions for all three participants. Also, self-regulation theory incorporates a self-observation and a decision making process that leads an individual to choose a particular response (Zimmerman, 1990). During the present investigation, students were able to view positive examples of them engaged in a desired behavior using video self-modeling, recognize their own behavior, and then record that behavior. This resulted in overall increases in students choosing to display desired behaviors as well as increased independence in identifying and self-recording behaviors.

Self-Identification of Behaviors

Students participated in pre-training sessions to learn how to identify their own behaviors as desired and undesired. These training sessions were constructed to assess their ability to differentiate between these behaviors and provided an opportunity for instruction to occur if needed. Sessions lasted 2-3 minutes and were conducted in a separate area to lessen distractions. To assist students in identifying and communicating their behaviors, a thumbs-up and thumbs-down prompt was used to signify desired and undesired behavior. These symbols were commonly used in the classroom to identify behavior.

Each student's demeanor varied during pretraining sessions. Both Thomas and Wyatt were happy and compliant during this phase, freely explored the behavior management software when provided access, and demonstrated their understanding of the

“thumbs up/thumbs down” icons. However, during this same period, Jason demanded immediate access to the software program, quickly inspected it and then handed it back to the instructor. Unlike his peers, when the thumbs up/thumbs down icons were introduced, Jason pounded the table with his fist and gave the thumbs-down sign. It was not until a verbal redirection was provided that he responded appropriately. He was eventually able to demonstrate understanding of desired and undesired behavior by nodding his head; however, he made limited eye contact with both the primary researcher and teacher. Eventually, when asked to respond to desired behavior questions, Jason immediately pushed the thumbs-up icon, glanced at his teacher, and looked down.

Unlike Thomas and Jason, Wyatt had strong vocabulary and language skills. When arriving at the table, Wyatt looked at the primary researcher and teacher and extended a greeting. After receiving the device during the exploration time, Wyatt stated, “I can do that and it shouldn’t be a problem.” However, his initial behaviors when exploring the device included licking the back of the iPad2[®] device and systematically pushing the buttons while singing the happy birthday song. When presented with questions illustrating undesired and desired behaviors, Wyatt was able to respond accurately and answer both types of questions with 100% mastery.

Use of a Behavior Management System

Students were taught to use the behavior management system to record their behaviors during small group instruction, a time in which each typically engaged in high rates of noncompliant behavior. Prior to intervention, students cried, tried to run out of the classroom, and hit adults during small group instruction. Before intervention began, each student viewed a video clip of himself engaged in a desirable behavior while

completing a task. Once in the small group, each was presented with the *iPad2*[®] with the ClassDojo[®] application opened. Each was then prompted per minute to self-select the thumbs up or thumbs down icon to identify his behavior as desirable (thumbs up) or undesirable (thumbs down). This continued during the intervention and maintenance conditions. Each student demonstrated varying levels of success when asked to self-identify whether he was demonstrating desirable or undesirable behavior.

Accuracy of Self-Recording Behavior

Interobserver Agreement (IOA) was used to determine the accuracy of each student's self-recorded behavior. While students self-recorded their behavior using ClassDojo[®], two independent observers simultaneously recorded the student behavior they observed. IOA was then calculated to determine data agreement and the accuracy of those data recorded by students.

All three students demonstrated similar performance levels during baseline, intervention and maintenance conditions. Their mean level of accuracy during baseline ranged from 42.5 to 51.6 percent. During intervention, their percent of accurately identifying their behaviors ranged from 84 to 90 percent. During the maintenance condition, their mean level of accuracy ranged from 90 to 100 percent. What varied during each condition were their behaviors when interacting with the self-recording system and responding to teacher prompts. When prompted, Thomas would look around the room and laugh while concurrently recording his behavior on the behavior management system. Jason responded immediately to each prompt and then directly returned to his small group work while Wyatt would respond to each prompt and record his behavior. He would follow his response by mimicking the symbol and physically

demonstrating a thumbs-up or thumbs-down. He would also verbally respond, “I answered” and then demonstrate the thumbs-up or thumbs-down symbol. Interestingly, at the time of the study, Thomas was only 3 years of age and the youngest participant in the study. While research suggests that children under the age of four are unable to learn to self-identify behavior (Madaus & Ruberto, 2011) and still require time to formulate their ability to self-regulate, Thomas was able to do so and achieved greater accuracy than one of the other students.

Impact of the Intervention Package

The effectiveness of a behavior management system with video self-modeling was examined to determine its impact on the behaviors of youngsters with social emotional deficits. The intervention package consisted of the video self-modeling, behavior management software, and instructor prompting. As a package intervention, students acquired the ability to identify and self-record their behavior. Because the intervention was presented as a packaged approach, it cannot be confirmed whether an individual component or the intervention package as a whole was responsible for facilitating behavior change.

The overall impact of the intervention package suggests that it was effective for all three students. Current research suggests that using video self-modeling to reduce problematic behavior (Baker et al., 2009; Buggey, 2007; Coyle et al., 2004; Hart & Whalon, 2008) and increase self-regulation skills is an effective tool. The addition of the self-recording and instructor prompting to the intervention package resulted in considerable improvements in self-regulation from baseline levels. During baseline, all students in the present study demonstrated low rates of desired behavior (42.5%, 48%

and 51.66% respectively) likely indicating initial low rates of self-regulation. However, student performance increased during the intervention (84%, 87%, and 90% respectively) and maintenance (90%, 100%, and 100% respectively) sessions with considerable increases in desired behaviors and accurate behavioral self-recording. These increases were replicated across students and thus, illustrated the effectiveness of the intervention on the dependent variable.

Each student remained focused on the immediate task when prompted to self-record. However, additional behaviors were observed. For example, Thomas would smile, point to the video screen, and then point to himself after being prompted. His behavior would suggest that he enjoyed watching himself on the video screen. Wyatt also verbally announced his enjoyment of viewing the video. All three were able to independently record their behaviors with high levels of accuracy, express their pleasure in working with the intervention package while completing their small group tasks.

Thomas' mean percent of desired behaviors increased to 90% after the implementation of the VSM and behavior management software. This represents a 42% increase from the baseline mean. Prior to intervention, his typical behaviors during small group instruction included work refusal, crying, and screaming when presented with a task. However, once intervention began, no work refusal was observed. Thomas was compliant and attempted to complete all the tasks given during small group instruction. He responded similarly during the maintenance sessions and continued to display desired behaviors with a mean performance level of 90%. Results illustrate that Thomas was able to increase his desired behaviors with the use of the VSM and behavior management system and generalize this increase during the final phase.

Jason's mean percent of desired behaviors increased to 84% after the implementation of the intervention package. This represents a 41.5% increase in mean performance from baseline measures. Prior to intervention, he demonstrated aggressive and noncompliant behaviors in the form of self-injury and tantrums during small group instruction. However, after the implementation of VSM and the behavior management system during the intervention sessions, his aggressive behaviors immediately ceased.

Furthermore, task completion was noted throughout the intervention sessions. These results suggest that the intervention was effective in facilitating desired behaviors while concurrently decreasing those that were undesired. During maintenance sessions, the VSM system was removed and Jason was asked to self-record behavior during three sessions. He successfully maintained desired behavior and self-recorded his behavior during each session. This aligns with current research suggesting that VSM and assistive technology devices assist with decreasing noncompliant and disruptive behavior (Coyle, et al., 2004).

Wyatt's mean percent of desired behavior was 90% after the implementation of intervention. This represents a 28% increase from his baseline mean. During maintenance, he achieved a mean of 100% in correctly self-reporting his behavior and maintaining desired behaviors. Similar to the other students, Wyatt did not demonstrate any noncompliance following intervention. All activities were completed without him crying, screaming, or wandering around the classroom.

Students confirmed their enjoyment in using the intervention package during post intervention interviews. Each responded positively to using the VSM and the behavior management software. Specifically, students indicated that they enjoyed watching videos

during the intervention sessions. Responses and gestures were received when asking the students if they enjoyed watching the video self-modeling samples. Thomas responded by making eye contact with the primary researcher and nodding his head to signify yes. Jason responded, “Yes, yes, I do.” Wyatt responded, “They helped me remember to be good.” This strengthens the current research for incorporating computer-based technology and software in a preschool classroom (Clements & Samara, 2003).

Implications

This study contributes to the self-regulation research for early childhood students with social emotional deficiencies in that it demonstrates its success for self-recording and increased desired behaviors. This study expands the current literature focusing on video self-modeling and self-recording with individuals who demonstrate varying disabilities (Charlop et al., 2010; Grosberg et al., 2014; Shipley-Benamou et al., 2002; Simpson et al., 2004). Social validity findings suggest video self-modeling and behavior management software are desirable tools when teaching self-regulation skills. Implications of this study include a developing research foundation for teaching early childhood students to accurately identify and self-record their behavior, the identification of effective strategies for increasing desired student behaviors, and the use of assistive technology to teach self-regulation.

The present results demonstrated a functional relationship between the independent and dependent variables that resulted in positive behavior changes. This contributes to the literature by being one of the first studies to do so with this population of students. Specifically, using a behavior management system and video self-modeling does increase self-regulation skills with early childhood students who display social

emotional deficiencies. An increase in self-identification of behavior and adjustment to desired behavior was noted during the study. Providing additional support that early childhood students who display social emotional deficits do have the ability to adjust behavior to more acceptable levels when given tools to learn these required behaviors.

Students with social emotional deficiencies at the early childhood level may continue to engage in undesired behaviors without intervention. While studies (Buggey et al., 2011; Cihak et al., 2012) identified effective strategies for teaching this population to increase social interactions, social initiation, and quicker acquisitions of skills, specifically targeting strategies for self-regulation for self-regulation that result in increased desired behavior is missing from the literature. Early intervention can be an effective practice for increasing self-identification, self-accuracy and an overall increase of desired behaviors through incorporating the principals of self-regulation. This study provides this information.

The use of AT with preschoolers continues to evolve. As technology uses increases in schools, opportunities to teach students to engage in self-management skills using AT is vital. Students with social emotional disabilities need to increase desired behaviors. AT affords an opportunity to expand self-management skills and focuses on improving behavioral deficits. However, limited research exists that examines the ability of early childhood students to accurately self-identify behavior using AT devices for the sole purpose of increasing self-regulation skills through desired and undesired behaviors with early childhood students who display social emotional deficits. Results from this study indicate that using AT devices with early childhood students identified with social

emotional deficiencies is an effective intervention with great implications for future practice.

Limitations and Future Directions

Single subject research designs by definition are limited because of the small sample size (Kennedy, 2005). The present study involved only three participants and was the first study of its kind. Thus, interpretation of results to older students or those with other disabilities is limited. An additional limitation identified during this study may be attributed to environmental changes.

The presence of the researcher and a second observer in the classroom possibly impacted the environmental setting and influenced student performance. Prior to pretraining, adults other than the classroom teacher and paraprofessionals were present in the classroom setting. As the study began, the researcher and second adult observed and recorded student performance. Their presence may have influenced student performance. In fact, research notes that the presence of the additional adults could inadvertently change or lessen acting out behavior (Buggey & Ogle, 2012). Thus, future investigations should identify strategies to reduce the influence of novel adults in the environment or alternative means for gathering IOA and treatment integrity data.

Another factor that appeared to create a threat to the internal validity of the environmental setting was the viewing location of the videos. The observation of the video during self-modeling sessions occurred prior to intervention while target students were seated at the small group table with the teacher, researcher, and other students present. To decrease the time needed to transition and view the videos, it was determined that the students would view the video after transitioning to the small group instruction

time. Before instruction started, the students would view the video. Previous research suggests the viewing of video self-modeling should occur in a quiet, private room. Specifically, instruction took place in a single setting that included noise and distracters that may have impacted student performance (Buggey et al., 2011). Future studies might compare viewing locations with children at the early childhood level to determine if differences are noted.

Students were successful in maintaining their self-regulation behaviors during the final phase of the study. However, generalization of self-regulation behaviors to a second setting was not examined during this investigation. Because students used only a single setting to demonstrate self-regulation behaviors, future studies might examine students' ability to generalize the target behaviors to additional settings (MacLean-Blevins, 2013).

Current findings suggest the ability to use the video-self modeling intervention is most successful with individuals after the age 4 (Bellini, Peters, Benner, & Hopf, 2007). However, Thomas who was 3 years of age during this study was able to remain on task while accurately identifying his own behavior. While current research on self-regulation suggests that this skill is developed after the age of 4 (Buggey et al., 2011) future investigations might examine children at varying age levels to determine if the present findings were an anomaly or if other children of the same age or younger might also respond positively to the intervention package.

While acknowledging the limitations that occurred within this study, additional avenues for future research require further investigation. For instance, the characteristics of the early childhood student such as age, gender, and ethnicity of students call for additional inquiry. Initially, one female was chosen to participate in the study. However,

because of student health issues and frequent absences, she was not included as a participant. Future studies should include students representing both genders (Suplee, Skuban, Trentacosta, Shaw, & Stoltz, 2011) when investigating self-regulation to determine if the results are gender-specific or can generalize across both males and females with social emotional disabilities. Other areas for further study include the age of the student, common perceptions of disruption while using AT devices in a classroom, and further investigation of the impact of video self-modeling and behavior management software with the impact of decreasing social emotional deficiencies with early childhood students.

A common misperception about assistive technology in the classroom is that it will serve as a disruption to learning and will result in a loss of instructional time (Hoff & Ervin, 2013). Two types of technology were used during this study: video self-modeling delivered via an *iPad2*[®] and use of the ClassDojo[®] behavior management software program. The positive results on students' self-regulation indicate that these did not detract from student learning. While Thomas did demonstrate some behavioral challenges during intervention, his performance increased during the maintenance phase. During post interview sessions, teachers confirmed that disruptions to small group instruction did not occur during data collection or when students viewed videos. Future research should continue to monitor whether or not the assistive technology being used is conducive to student learning.

During the study, students increased their desired behavior across sessions. Findings suggest the significance of using the VSM and behavior management software in tandem to teach self-regulation. Both Jason and Wyatt appeared to perform

consistently using both systems. Thomas' results suggest that during the intervention sessions, VSM had a greater impact of his ability increase desired behaviors. However, post interview social validity questions resulted in favorable responses when using assistive technology, specifically the behavior management system. Further investigation is needed to determine which behavior intervention; the video self-modeling or the behavior management facilitated increases in student performance. Research should investigate these two systems individually to determine the impact of teaching self-regulation skills.

Conclusion

This study investigated the use of video self-modeling and a behavior management software program to teach self-regulation skills to early childhood students identified with social emotional disabilities. Student engagement in self-recording behaviors, accuracy with self-regulation, and increase of the desired behaviors were investigated. Further, the level of disruption that occurred during small group instruction when using the assistive technology and the ability of the students to independently use the systems were also observed.

Questions regarding the impact of self-regulation systems to increase the ability early childhood students with social emotional disabilities to self-identify and adjust behavior were examined. Common misconceptions of this study include the inability for early childhood students who display social emotional deficiencies to use the behavior management software and VSM systems to increase self-regulation. However, using these systems to increase self-regulation was apparent when reviewing the impact of student performance and accuracy to self-identify behaviors. Findings suggest that early

childhood students who display social emotional deficiencies are able to successfully acquire self-regulation skills when engaged in targeted instruction to develop such skills. Using video self-modeling systems in conjunction with behavior management systems show promise with teaching students to accurately self-regulate their behavior, engage in using AT devices and increasing desired behaviors.

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APPENDICES

Appendix A: Student Target Behavior

Date:

Interval Observation/Time	Student Response	Teacher Response
1-	Y/ N	Y/ N
2-	Y/ N	Y/ N
3-	Y/ N	Y/ N
4-	Y/ N	Y/ N
5-	Y/ N	Y/ N
6-	Y/ N	Y/ N
7-	Y/ N	Y/ N
8-	Y/ N	Y/ N
9-	Y/ N	Y/ N
10-	Y/ N	Y/ N

Date:

Interval Observation/Time	Student Response	Teacher Response
1-	Y/ N	Y/ N
2-	Y/ N	Y/ N
3-	Y/ N	Y/ N
4-	Y/ N	Y/ N
5-	Y/ N	Y/ N
6-	Y/ N	Y/ N
7-	Y/ N	Y/ N
8-	Y/ N	Y/ N
9-	Y/ N	Y/ N
10-	Y/ N	Y/ N

Date:

Interval Observation/Time	Student Response	Teacher Response
1-	Y/ N	Y/ N
2-	Y/ N	Y/ N
3-	Y/ N	Y/ N
4-	Y/ N	Y/ N
5-	Y/ N	Y/ N
6-	Y/ N	Y/ N
7-	Y/ N	Y/ N
8-	Y/ N	Y/ N
9-	Y/ N	Y/ N
10-	Y/ N	Y/ N

Appendix B Treatment Integrity Session Checklist

	Task	Complete?
1.	The student was transitioned into a small group.	y/n
2.	The student was given the iPad2®.	y/n
3.	The student pushed the button to watch the video.	y/n
4.	The teacher presented the behavior management software to the student and explained the procedures. “When I point to the device, you will need to push one of the pictures. If you are doing a good job, push the thumbs up. If you aren’t doing what you need to, push thumbs down.”	y/n
5.	The teacher pointed to the behavior management software (series 1).	y/n
6.	The student responded.	y/n
7.	The teacher documented the response.	y/n
8.	The teacher pointed to the behavior management software (series 2).	y/n
9.	The student responded.	y/n
10.	The teacher documented the response.	y/n
11.	The teacher pointed to the behavior management software (series 3).	y/n
12.	The teacher documented the response.	y/n
13.	The student responded.	y/n
14.	The teacher pointed to the behavior management software (series 4).	y/n
15.	The teacher documented the response.	y/n
16.	The student responded.	y/n
17.	The teacher pointed to the behavior management software (series 5).	y/n
18.	The teacher documented the response.	y/n
19.	The student responded.	y/n
20.	The teacher pointed to the behavior management software (series 6).	y/n
21.	The teacher documented the response.	y/n
22.	The student responded.	y/n
23.	The teacher pointed to the behavior management software (series 7).	y/n
24.	The teacher documented the response.	y/n
25.	The student responded.	y/n

26.	The teacher pointed to the behavior management software (series 8).	y/n
27.	The teacher documented the response.	y/n
28.	The student responded.	y/n
29.	The teacher pointed to the behavior management software (series 9).	y/n
30.	The teacher documented the response.	y/n
31.	The student responded.	y/n
32.	The teacher pointed to the behavior management software (series 10).	y/n
33.	The teacher documented the response.	y/n
34.	The student responded.	y/n

VITA

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EDUCATIONAL HISTORY

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EMPLOYMENT HISTORY

2010-	Behavior Specialist	Pike Township	Indianapolis, Indiana
2009-2010	Behavior Coach	Pike Township	Indianapolis, Indiana
2005-2010	Resource Teacher	Eagle Creek Elementary School, Pike Township	Indianapolis, Indiana
2005-2008	Adjunct Faculty	Butler University, College of Education	Indianapolis, Indiana
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2003-2004	Resource Teacher	Eagle Creek Elementary School, Pike Township	Indianapolis, Indiana
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Special Education	Learning Disabilities (K-12)
Special Education	Emotional Disabilities (K-12)

REFEREED ARTICLES

- Szwed, K.** & Bouck, E.C. (2013). Clicking away: Repurposing student responses systems to lessen off task behavior, *Journal of Special Education Technology*, 28, 1-12.
- Taber-Doughty, T., Bouck, E. C., Bassette, L., **Szwed, K.**, & Flanagan, S. (2013). Spelling on the fly: Investigating a pentop computer to improve the spelling skills of three elementary students with disabilities. *Assistive Technology*, 25, 166-175.
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GRANTS

Dumas, R. & **Szwed, K.** (2015). Awarded Indiana Safe Haven Grant through the Indiana Criminal Justice Institute.

Dumas, R. & **Szwed, K.** (2014). Awarded Indiana Safe Haven Grant through the Indiana Criminal Justice Institute.

NATIONAL AND INTERNATIONAL PRESENTATIONS

Szwed, K. & Dumas, R. (2015). Taking PBIS a step further: Utilizing a social skills curriculum. Lecture presentation at the 20th Annual Conference on Advancing School Mental Health, New Orleans, LA.

Dumas, R. & **Szwed, K.** (2015). Getting started with Check & Connect at the middle school level. Lecture presentation at the Check & Connect National Conference: 25 years of Student Engagement, Minneapolis, MN.

Szwed, K. (April, 2012). Clicking away: Use of the student response system to self-monitoring behavior. Poster presentation at the Council for Exceptional Children Conference and Expo, Denver, CO.

Szwed, K. (April, 2012). Using children's literature to increase educators' understanding of special education accommodations. Poster presentation at the Council for Exceptional Children Conference and Expo, Denver, CO.

Szwed, K. & Taber-Doughty, T. (January, 2012). Using children's literature to increase educators' understanding of special education. Poster presentation Council for Exceptional Children/Division on Autism and Developmental Disabilities, Miami, FL.

Szwed, K. (September, 2011). Clicking away: Utilizing student response systems to teach self-monitoring skills to children with behavioral disorders. Poster presentation at the Council for Exceptional Children/Council for Children with Behavior Disorders, New Orleans, LA.

Taber-Doughty, T., Bouck, E., **Szwed, K.**, & Bassette, L. (April, 2009). Computer pens: Tools for learning writing, math, and spelling. Lecture presentation at the Council for Exceptional Children Conference and Expo, Seattle, WA.

Taber-Doughty, T., Bouck, E. & **Szwed, K.** (October, 2008). Computer pens: Tools for learning math and spelling. Lecture presentation at Council for Exceptional Children/Division on Autism and Developmental Disabilities, San Diego, CA.

STATE AND LOCAL PRESENTATIONS

- Szwed, K.** (July, 2015). Classroom management: Positive practices for creating strong classroom management. Lecture presentation at the Elevated Ed Conference, MSD of Pike Township, Indianapolis, IN.
- Szwed, K.** (July, 2015). CHAMPS: Positive practices for creating strong classroom management. Lecture presentation at the Elevated Ed Conference, MSD of Pike Township, Indianapolis, IN.
- Szwed, K.** (April, 2015). Classroom management: Increasing motivation and engagement for middle school students. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K. & Dumas, R.** (April, 2015). CHAMPS: A Proactive, Positive Approach to Behavior Management. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K. & Dumas, R.** (February, 2015). Nonviolent crisis intervention- Initial training. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K.** (January, 2015). Classroom management: Where do I start? Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K. & Dumas, R.** (January, 2015). Nonviolent crisis intervention- Fighting in schools. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K.** (October, 2014). Positive Behavior Support and Interventions: Making systematic change. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K. & Dumas, R.** (August, 2014). Second Step Curriculum Presentation. Presentations to implement curriculum with kindergarten classroom at the MSD Pike Township, Indianapolis, IN.
- Szwed, K.** (March, 2014). Class management. Guest Lecture at Butler University, Indianapolis, IN.
- Szwed, K. & Dumas, R.** (February, 2014). Developing crisis plans. Poster presentation at Indiana Council for Exceptional Children Winter Conference, Indianapolis, IN.
- Szwed, K.** (January, 2014). Classroom management and small group instruction: How to make it work for all students. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.

- Szwed, K.** (January, 2014). Classroom management and engagement. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K.** (January, 2014). Classroom management in the middle/secondary setting. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K. & Dumas, R.** (December, 2013). Nonviolent crisis intervention- Initial training. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Johnson, G. & Szwed, K.** (December, 2013). Nonviolent crisis intervention- Communicating with nonverbal individuals. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Dumas, R. & Szwed, K.** (October, 2013). Social skills training for the adolescent student. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K. & Johnson, G.** (October, 2013). Nonviolent crisis intervention- Maintaining your professionalism. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K. & Dumas, R.** (September, 2013). Check and connect. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Dumas, R. & Szwed, K.** (September, 2013). Positive behavior support and interventions. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K. & Dumas, R.** (September, 2013). Social skills training for the elementary student. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Dumas, R. & Szwed, K.** (September, 2013). Active supervision in the secondary setting. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K. & Johnson, G.** (September, 2013). Nonviolent crisis intervention- Recertification training. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Dumas, R. & Szwed, K.** (August, 2013). Aggression replacement training. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K.** (June, 2013). Creating successful resource programs. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Dumas, R. & Szwed, K.** (March, 2013). Active supervision for the elementary student. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.

- Dumas, R. & **Szwed, K.** (February, 2013). CHAMPS: Classroom management. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K.** & Johnson, G. (January, 2013). Nonviolent crisis intervention. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K.** (December, 2012). CHAMPS: A proactive and positive approach classroom management. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K.** & Dumas, R. (September, 2012). Active supervision in the general education classroom. Lecture presentation at the MSD of Pike Township, Indianapolis, IN.
- Szwed, K.** & Dumas, R. (April, 2012). Student staffing: A collaborative effort. Poster presentation at the 30th Annual Indiana Conference for Students with Emotional Disabilities, Nashville, IN.
- Szwed, K.** (January, 2012). Strategies to support positive behavior in the classroom. Lecture presentation at Central Indiana Educational Service Center, Indianapolis, IN.
- Szwed, K.,** & Steele, E. (December, 2011). Writing effective functional behavior assessments. Lecture presentation at MSD Pike Township, Indianapolis, IN.
- Szwed, K.** & Dumas, R. (December, 2011). Managing the cycle of acting out behavior. Lecture presentation at MSD Pike Township, Indianapolis, IN.
- Szwed, K.** (March, 2011). Developing behaviorally independent learners during small group instruction. Lecture presentation at MSD Pike Township, Indianapolis, IN.
- Huffman, C., **Szwed, K.,** Strahan, B., Woods, M., Bengel, D., Mamlin, H & Gerve, D. (April, 2009). Response to intervention. Lecture presentation at the Department of Education Response to Intervention Leadership Academy, Indianapolis, IN.
- Szwed, K.** (February, 2009). Creating effective alternative behavior plans. Lecture presentation at MSD Pike Township, Indianapolis, IN.
- Szwed, K.** & Turpin, S. (April, 2008). Creating teaching strategies while utilizing effective behavior support plans. Lecture presentation at MSD Pike Township, Indianapolis, IN.
- Szwed, K.** (March, 2007). What is special education? Lecture presentation at Butler University, Indianapolis, IN.

Szwed, K. & Strahan, B. (May, 2006). Response to intervention: Early intervention structures and programs. Lecture presentation at MSD Pike Township, Indianapolis, IN.

Szwed, K. (March, 2006). Functional behavior assessments: Writing effective plans. Lecture presentation at the TEACH Conference, Indianapolis, IN.

TEACHING EXPERIENCES

Butler University

Spring 2008	ED243: Methods and Materials: Mild Intervention
Fall 2007	ED243: Methods and Materials: Mild Intervention ED442: Student Internship Supervisor
Spring 2006	ED243: Methods and Materials: Mild Intervention ED430: Current Issues in Education
Fall 2005	ED243: Methods and Materials: Mild Intervention ED430: Current Issues in Education
Spring 2005	ED206: Introduction to Elementary Education ED242: Introduction to Special Education ED430: Current Issues in Education ED442: Student Internship ED587: Practicum-Learning Disabilities
Fall 2004	ED206: Introduction to Elementary Education ED430: Current Issues in Education ED441: Integrated Lab ED442: Student Internship

RELEVANT SERVICE TO THE PROFESSIONAL COMMUNITY

2009 - 2015	Proposal Reviewer	Council for Exceptional Children (Division on Autism and Developmental Disabilities) National Convention and Expo
2006	Search Committee Participant	Butler University Indianapolis, IN- Human Growth and Development Tenure Track Position
2005	Student Education Association Advisor	Butler University Indianapolis, IN

PROFESSIONAL ORGANIZATIONS

2008-2015	Student Member	Council for Exceptional Children (CEC)
2008-2015	Student Member	CEC- Division on Autism and Developmental Disabilities

2011-2015	Student Member	CEC- Council for Children with Behavioral Disorders
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AWARDS AND RECOGNITIONS

2002-2004	Teacher Leadership Academy	Central Indiana Educational Service Center
2004-2005	Apple for You Award	Student Government Association, Butler University
2005-2006	Teacher of the Year for Eagle Creek Elementary School	Pike Township
2006	Superintendent's Above and Beyond Award	Pike Township
2014	Superintendent's Above and Beyond Award	Pike Township